

GenCore version 5.1.4_P5_4578
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OM protein - protein search, using SW model

Run on: May 6, 2003, 09:50:00 : Search time: 73 seconds
(without alignments) 645,455 Million cell updates/sec

Title: US-09-832-658A-26

Percent score: 867

Sequence: 1 MAAVALALGASSMFGGQK PVEITPMFPRINPTCYIPN 156

Scoring table: BLOSUM62

Gap: 10.0, E-Post: 0.5

Search: 671580 seqs, 20604715 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post processing: Minimum Match: 0%

Listing first 45 summaries

Database: 1: SPREM1_21:*

Prod. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match	Length	DB ID	Description
1	789	91.0	187	4	Q15943
2	787	90.8	187	6	Q77812
3	507.5	58.5	186	6	Q23412
4	262.5	30.3	195	6	Q96L15
5	261	30.1	195	6	Q96L15
6	253	29.2	195	6	Q28845
7	253	29.2	195	6	Q28845
8	253	29.2	195	6	Q28845
9	252.5	29.1	199	4	Q14638
10	251	29.0	195	6	Q28843
11	251	29.0	195	6	Q28843
12	250	28.8	174	4	Q11168
13	250	28.8	189	6	Q96J78
14	250	28.9	189	6	Q96J78
15	249.5	28.4	195	6	Q96J16
16	241.5	28.2	195	6	Q96J16

17	241	27.8	195	6	Q28561
18	235	27.1	190	6	Q29085
19	234	27.0	190	11	Q96S91
20	233.5	26.9	179	6	Q29084
21	231.5	26.7	195	6	Q28170
22	230	26.5	190	6	Q29098
23	229.5	26.5	181	4	Q14608
24	226	26.1	190	4	Q29088
25	226	26.1	189	4	Q14605
26	224	25.8	190	11	Q96S92
27	224	25.5	190	11	Q61719
28	223	25.4	195	4	Q28568
29	220	25.4	190	11	Q96S12
30	217	25.0	190	11	Q96S16
31	217	25.0	190	11	Q96S18
32	216	24.9	207	4	Q96P00
33	208	24.0	291	11	Q96S19
34	207	23.9	190	11	Q96S14
35	205	23.6	190	11	Q64188
36	204.5	23.6	170	6	Q29114
37	204	23.5	190	11	Q61718
38	202.5	23.4	179	6	Q29115
39	202	23.4	190	11	Q91MX8
40	202	23.4	190	11	Q96Y98
41	200	23.1	195	11	Q96S16
42	196	22.6	166	6	Q79228
43	195	22.7	197	11	Q96B23
44	194	22.4	197	11	Q96B29
45	194	22.4	197	11	Q96S17

ALIGNMENTS

RESULT 1

ID Q15943 PRELIMINARY: PRI: 187 AA.

AC Q15943:

DT 01-NOV-1996 (TEMBRELL, 01, created)

DT 01-NOV-1996 (TEMBRELL, 01, last sequence update)

DT 01-DEC-2001 (TEMBRELL, 19, last annotation update)

DE Interferon-beta precursor.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

OX NCBI_TaxID:9606;

RN [1]

RP SEQUENCE FROM N.A.

RF MEDLINE:83065590; PubMed 6181692;

SA PETERS W., REICHERT B., DEGENS E., CHEVALIERE H., GELFAND E.D.,

SA GARGANO D., DEHARDT W.K., STANISLAW P., GARGANO J., 1997

KA Content J.

RT "The human fibroblast and human immune interferon genes and their

RT expression in homologous and heterologous cells."

RL Philon, T. Iran, R. Soc. London, B. Biol. Sci., 273:23-36(1982).

CC 1 SIMILARITY. BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA

CC FAMILY.

CC EMBL: M25460; M041702.1; ..

DR HSPB; P01574; IAN1.

DR Interferon; IFB00471; Interferon_abd

DR Pfam; PF00143; Interferon_1.

DR PF00143; PF00143; Interferon_1.

DR TrEMBL; F000550; Interferon_abd_1.

DR SMART; SM00076; Irbdd_1.

DR PROSITE; P00370; INTERFERON_ALPHA; 0975-0977.

DR Anticatalytic; cyclin; signal.

KT SIGNAL

KT CHAIN

SC SEQUENCE 187 AA; 22251 MW; 18856596492061 COT043

Query: March 91.09; Score: 299.39; 4; Length: 187;

Post Local Similarity: 92.28; Prod. No.: 1.5e-42;

Matches: 153; Conservative: 2; Mismatch: 11; Indel: 0; Gaps: 0;

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OM protein - protein search, using sw model

Run on: May 6, 2003, 09:49:03; Search time 8 seconds
(without alignments)
860.634 Million cell updates/sec

Title: US-09-832-658a-26

Perfect score: 867
Sequence: 1 MAYAALNAGSMTGQGL..... FVFIFMFYINFTTYIRN 166

Scoring table: HLOSDM62
Gap: 10.0, Gapext 0.5

Scanned: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112392

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: SwissProt_40.*

Prod. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	829	95.6	187	1 INB_HUMAN
2	488.5	56.3	186	1 INB_FELCA
3	463.5	53.5	186	1 INB_HORSE
4	460.5	53.1	186	1 INB2_BOVIN
5	426.5	49.2	186	1 INB1_BOVIN
6	408.5	47.1	186	1 INB1_BOVIN
7	413	48.4	182	1 INB_MOUSE
8	326.5	37.7	184	1 INB_RAT
9	288	33.2	195	1 INO2_HORSE
10	270	31.4	195	1 INO1_HORSE
11	263.5	30.4	195	1 INO1_BOVIN
12	257	29.6	195	1 INO1_BOVIN
13	255.5	29.5	195	1 INO1_BOVIN
14	254	29.3	184	1 INA1_HORSE
15	254	29.3	184	1 INA1_HORSE
16	254	29.3	184	1 INA1_HORSE
17	251.5	29.2	172	1 INF2_BOVIN
18	253	29.2	195	1 INT1_SHEEP
19	253	29.2	195	1 INT1_SHEEP
20	252.5	29.0	188	1 INA2_HUMAN
21	251.5	29.0	188	1 INA2_HUMAN
22	251	29.0	195	1 INT6_SHEEP
23	251	29.0	195	1 INT6_SHEEP
24	250	28.8	184	1 INA2_HORSE
25	248	28.6	195	1 INA2_SHEEP
26	247.5	28.5	189	1 INA5_HUMAN
27	246.5	28.4	195	1 INT3_BOVIN
28	246.5	28.4	195	1 INT3_BOVIN
29	245	28.3	172	1 INT3_SHEEP
30	245	28.3	195	1 INT1_HUMAN
31	245	28.3	195	1 INT7_SHEEP
32	245	28.3	195	1 INT7_SHEEP
33	245	28.3	195	1 INT8_SHEEP

34	242.5	28.0	189	1 INA4_HUMAN
35	242.5	28.0	189	1 INA7_HUMAN
36	241.5	27.9	195	1 INT_GIRCA
37	240	27.7	195	1 INT_GIRCA
38	239	27.6	189	1 INA6_HUMAN
39	237.5	27.4	189	1 INA6_HUMAN
40	236	27.2	189	1 INT8_SHEEP
41	233	26.9	195	1 INA4_HUMAN
42	232.5	26.8	186	1 INT3_BOVIN
43	231.5	26.7	195	1 INT3_BOVIN
44	229.5	26.5	189	1 INA7_HUMAN
45	229	26.4	195	1 INTA_SHEEP

ALIGNMENTS

RESULT 1

ID INB_HUMAN STANDARD. FRT: 187 AA.

AC P01574:

DT 21-JUL-1986 (Ref. 01, Created)

DT 21-JUL-1986 (Ref. 01, Last sequence update)

DT 15-JUN 2002 (Ref. 41, Last annotation update)

DE Interferon beta precursor (IFN-beta) (Fibroblast interferon)

GN IFNB1 OR IFNB OR IFB

OS Homo sapiens (Human)

OC Eukaryota, Metazoa, Chordata, Vertebrata, Euteleostomi

OC Mammalia, Euliphotia, Primates, Catarrhini, Hominoidea, Homo

OC NCBI-TaxID=9606

OX 11

RP SEQUENCE FROM N.A.

RA MEDLINE=8119852; PubMed=6164984;

RA Law R.M., Adams C., Placke A.L., Bock C.M., Gross M.,

RA Natarajan R., Goeddel D.V.;

RT "Human fibroblast interferon gene lacks introns."

RL Nucleic Acids Res. 9:1045-1052(1981).

RN 12

RP SEQUENCE FROM N.A.

RA Ohno S., Taniguchi T.;

RT "Structure of a chromosomal gene for human interferon beta."

RL Proc. Natl. Acad. Sci. U.S.A. 78:5405-5409(1981).

RN 13

RP SEQUENCE FROM N.A.

RA MEDLINE=81005095; PubMed=6157631;

RA Taniguchi T., Ohno S., Fujii-Kuriyama Y., Muramatsu M.;

RT "The nucleotide sequence of human fibroblast interferon cDNA."

RL Gene 10:11-15(1980).

RN 14

RP SEQUENCE FROM N.A.

RA MEDLINE=81053752; PubMed=6159580;

RA Houghton M., Eaton M.A.W., Stewart A.G., Smith J.A., Inat S.M.,

RA Carlini G.H., Lewis H.M., Patel J.P., Emery J.S., Carey N.H.;

RT "The complete amino acid sequence of human fibroblast interferon as

deduced using synthetic oligonucleotide primers of reverse

transcriptase."

RL Nucleic Acids Res. 8:2885-2894(1980).

RN 16

RP SEQUENCE FROM N.A.

RA MEDLINE=81053752; PubMed=6159584;

RA Goeddel D.V., Shephard H.M., Veliveton E., Leung D., Chou K., Slomka A.;

RA Pestka S.;

RT "Synthesis of human fibroblast interferon by E. coli."

RL Nucleic Acids Res. 8:4057-4074(1980).

RN 17


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FT CARBOHYD 46 46 N LINKED (GLCNAc, . . .) (POTENTIAL)
FT CARBOHYD 101 101 N LINKED (GLCNAc, . . .) (POTENTIAL)
FT CARBOHYD 131 131 N LINKED (GLCNAc, . . .) (POTENTIAL)
FT CARBOHYD 146 146 N LINKED (GLCNAc, . . .) (POTENTIAL)
SC SEQUENCE 186 AA: 22187 MW: 2503591808AC862 CRC64:

Query Match
Host Local Similarity 53.1% Score 488.5 DB 1: Length 186;
Matches 90, Conservative 28, Mismatches 40, Indels 1, Gaps 1,

DB 1 MAAATGAGGASNSGQCTIMWQNSGFVYKRNKFNPFEPFKQCFKRFPAATLY 60
DB 22 VSKLLGCHLRSSSLNQGLIVNLNTSYCKLDKNFNPEPKKSKCHQKEALV 81
OY 61 EMUNIFALFPRDSSSTQMTIVENILANVHQINHLKTVLPKLEPDTFGALMSCL 120
DB 82 EMQKLEINLEKRSSTQMTIVENILALIMQKEHLEILEEINENFTWDN-TTL 140
OY 121 HKNVCEITHTKAKVSNFMTIVETFEETFEETLYIN 166
DB 141 RPTVTEFVPTFAEYVAMTVHATTEFTLEELVLDN 194

RESULT 3
INB_HORSE STANDARD PRT: 186 AA.
AC P05012:
DI 13-AUG-1987 (Rel. 05, Created)
DI 13-AUG-1987 (Rel. 05, Last sequence update)
DI 15-JUN-2002 (Rel. 41, Last annotation update)
DE Interferon beta precursor (IFN beta).
GN IFNB.
OS Equus caballus (Horse).
OC Bosartia: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi:
OC Mammalia: Eutheria: Perissodactyla: Equidae: Equus.
OX NCBI_TaxID=9796;
RN [1]
RP SEQUENCE FROM N.A.
RA MEDLINE: 8705470, PubMed: 3022299,
RA Hummer A., Hauptman P., Abbott R., Swally P.,
R1 "Molecular cloning and expression in Escherichia coli of equine type
R1 1 interferons."
R1 JNA 51:45-56(1986).
CC 1-1 FUNCTION: HAS ANTIVIRAL, ANTIBACTERIAL AND ANTICANCER ACTIVITIES.
CC 1-1 SUBUNIT: MONOMER.
CC 1-1 SUBCELLULAR LOCATION: Secreted.
CC 1-1 SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
FAMILY.
CC This SWISS-PROT entry is copyrighted. It is produced through a collaboration
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CC use by non-profit institutions as long as its content is in no way
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CC or send an email to license@ebi.ac.uk).
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EMBL: M15478; AAA30580.1;
DB PIR: A5149; IYB02.
DB HSP: P01574; IYB01.
DB InterPro: IPI000471; Interferon_ahd.
DB Pfam: PF00143; Interferon_1.
DB PRINTS: PF00266; Interferon_1.
DB PRODOM: PPO00550; Interferon_ahd.
DR SMART: SM00076; IYB01.
DR PROSITE: PS00522; INTERFERON_ALPHA_1.
DR PROSITE: PS00522; INTERFERON_ALPHA_2.
KW CYCLOPEPTIDE GLYCOPROTEIN; Antiviral; Multi-pass family; Signal.
FT SIGNAL 1 21
FT CHAIN 22 186 INTERFERON BETA-2.
FT DISULFID 52 161 PROBABILE.
FT CARBOHYD 131 131 N-LINKED (GLCNAc, . . .) (POTENTIAL).
FT CARBOHYD 146 146 N-LINKED (GLCNAc, . . .) (POTENTIAL).
SC SEQUENCE 186 AA: 22319 MW: 191257062450486 CRC64:

Query Match
Host Local Similarity 53.1% Score 460.5 DB 1: Length 186;
Matches 90, Conservative 41, Mismatches 42, Indels 1, Gaps 1,

DB 1 VAAAGALAGGEGGEGGQCTIMWQNSGFVYKRNKFNPFEPFKQCFKRFPAATLY 60
DB 24 VTLFSGGSGGSGGQCTIMWQNSGFVYKRNKFNPFEPFKQCFKRFPAATLY 84
OY 63 GSNLAHFAEGSGGQCTIMWQNSGFVYKRNKFNPFEPFKQCFKRFPAATLY 120
DB 84 LGHTWELFSAFASQMTIVENILANVHQINHLKTVLPKLEPDTFGALMSCL 142
OY 123 KFYVCEITHTKAKVSNFMTIVETFEETFEETLYIN 166
DB 143 KKYGRISQVIRAKVSNFMTIVETFEETFEETLYIN 186

RESULT 4
INB2_BOVIN STANDARD PRT: 186 AA.
AC P01576:
DI 21-JUN-1986 (Rel. 01, Created)
DI 21-JUN-1986 (Rel. 01, Last sequence update)
DI 15-JUN-2002 (Rel. 41, Last annotation update)
DE Interferon beta 2 precursor.
GN IFNB2.
OS Bos taurus (Bovine).
OC Bosartia: Metazoa: Chordata: Craniata: Vertebrata: Euteleostomi:
OC Mammalia: Eutheria: Cetartiodactyla: Ruminantia: Bovidae:
OC Bovidae: Bovinae: Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RA Ljung D.W., Capon D.J., Goeddel D.V.,
R1 "The structure and bacterial expression of the bovine bovine
R1 interferon-beta genes."
R1 Biotechnology 2:458-464(1984).
CC 1-1 FUNCTION: HAS ANTIVIRAL, ANTIBACTERIAL AND ANTICANCER ACTIVITIES.
CC 1-1 SUBUNIT: MONOMER.
CC 1-1 SUBCELLULAR LOCATION: Secreted.
CC 1-1 SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
FAMILY.
CC This SWISS-PROT entry is copyrighted. It is produced through a collaboration
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CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.ebi.ac.uk/submit/submit.html
CC or send an email to license@ebi.ac.uk).
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DB 142 LOCATFN:MOLGENE:R2AM1V0V011NVSFLMLTGYVRD 186

RESULT 7

INB_MOUSE

ID INH_MOUSE STANDARD PRT 182 AA.

AC P01575.

DT 21-JUN-1986 (Rel. 01, Created)

DT 21-JUN-1986 (Rel. 01, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)

DE Interferon beta precursor (IFN beta).

GN IFN or IFB.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI_TaxID=10090.

RN SEQUENCE FROM N.A.

RX MEDLINE:8426575; PubMed:668262;

RA Hiraishi Y., Sakaga Y., Matsuda Y., Kasado Y., Chao S., Tanaka C., Taniguchi T.

RT "Structure and expression of a cloned cDNA for mouse interferon beta."

RI J. Biol. Chem. 259:9522-9529(1984).

RN SEQUENCE FROM N.A.

RX MEDLINE:89264735; PubMed:2726460;

RA Koda T., Fujita T., Taniguchi T.

RT "Nucleotide sequence of the mouse interferon beta gene."

RI Nucleic Acids Res. 17:3291-3291(1989).

RN SEQUENCE FROM N.A.

RX MEDLINE:89125582; PubMed:322189;

RA Volldant G., Coulombet G., Doly J.

RT "Structure and characterization of a murine chromosomal fragment containing the interferon beta gene."

RI J. Mol. Biol. 204:221-231(1988).

RN STRUCTURE OF CARBOHYDRATES.

RX MEDLINE:86196115; PubMed:3360040;

RA Clever A., Fournet B., Coulombet G., Le Rousselet D., Rouvault A., Fieck A., Montreuil J., Doly J.

RT "Purification and carbohydrate structure of natural murine interferon-beta."

RI Eur. J. Biochem. 173:311-316(1988).

RN X-RAY CRYSTALLOGRAPHY (2.75 ANGSTROMS).

RE Sendo T., Matsuda S., Kurihara H., Nakamura K. T., Kawano G., Shimizu H., Miyano H., Mitsui Y.

RT "Three-dimensional structure of recombinant murine interferon-beta." Proc. Natl. Acad. Sci. USA 86:77-80(1989).

RN X-RAY CRYSTALLOGRAPHY (2.6 ANGSTROMS).

RP MEDLINE:92371425; PubMed:1505514.

RX Sendo T., Shimazu T., Matsuda S., Kawano G., Shimizu H., Nakamura K. T., Mitsui Y.

RT "Three-dimensional crystal structure of recombinant murine interferon-beta." EMBO J. 11:3133-3201(1992).

RN X-RAY CRYSTALLOGRAPHY (2.15 ANGSTROMS).

RP MEDLINE:96028219; PubMed:7473712;

RA Sendo T., Satoh S., Mitsui Y.

RT "Refined crystal structure of recombinant murine interferon-beta at 2.15-A resolution." J. Mol. Biol. 253:187-207(1995).

CC FUNCTION: HAS ANTI-VIRAL, ANTI-BACTERIAL AND ANTICANCER ACTIVITIES

CC SUBUNIT: MONOMER.

CC SUBCELLULAR LOCATION: Secreted.

CC -1- PIM: THIS BETA INTERFERON DOES NOT HAVE A DISULFIDE BOND.

CC -1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA FAMILY.

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CC

DR EMBL: K00020; AAA37891.1;

DR EMBL: X14455; CAA32625.1;

DE EMBL: X14529; CAA32190.1;

DR PIR: A01839; IWSR

DR PIR: S02020; S02020.

DR POS: 11FA; 31-JAN-94.

DR POS: 2HIF; 31-AUG-94.

DR POS: 1RML; 14-FEB-95.

DR M01: M01; 107657; 11nb.

DR InterPro: IP0000471; Interferon_abd.

DR Pfam: PF00143; Interferon_1.

DR PRINTS: PR00364; INTERFERONAB.

DR PRODOM: PD000550; Interferon_abd_1.

DR SMART: SM00076; IPab1.

DR PROSITE: PS00252; INTERFERON_ALFA_D_1.

DR Cys-rich glycoprotein; Antiviral signal; 3D-structure.

FT SIGNAL 1 21

FT CHAIN 22 182

FT CARBOYD 50 50

FT CARBOYD 90 90

FT CARBOYD 97 97

FT STRUCH 192 AA; 22127 MW; 874022947701917 GR664;

Query Match 48.4%; Score 333; DB 1; Length 182;

Best Local Similarity 48.4%; Prev. No. 176-21;

Matches 77; Conservall 22; Mismatches 53; Indels 6; Gaps 4;

G 9 CAGSNNPCTGKLLMGNLSEAPVCKPMNPMPNKKKQKQKQKPAATFVGNIE 67

DB 29 LDEKRIKPKGLLPQKSKTN-CLTRKGRFRFRRRQ TSSAKSTGKATGFMQKQV 84

G 68 ALEGSASLMLNLTIVELALVYSLDLPVLA-CLTFLVLA-CLTFLVLA-CLTFLVLA 127

DB 85 LVRNNESTGNTTIVRLDELHQVFLKIVLPK-QEDELTPSSVSLAKSYW 144

G 128 RIHTLKAKESICAWTVVEVLLNFTKIKLGYLKN 166

DB 144 FVQYELFLFTSYAMVVFATFEPVLPKSTFRRYGN 192

RESULT 8

INB_RAT

ID INB_RAT STANDARD PRT 184 AA.

AC P70499;

DT 01-NOV-1997 (Rel. 35, Created)

DT 01-NOV-1997 (Rel. 35, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)

DE Interferon beta precursor (IFN-beta).

GN IFNB.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OX NCBI_TaxID=10116;

RN SEQUENCE FROM N.A.

RP STRAIN Mismatch: 21858; Liver;

RX MEDLINE:97271997; PubMed:9126438;

RA Yokoyama S., Ghosh N., Shamoto Y., Yagi K.

RT "Isolation and expression of rat interferon beta gene and growth-inhibitory effect of its expression on rat glioma cells." J. Biochem. Biophys. Res. Commun. 232:698-701(1997).

CC FUNCTION: HAS ANTI-VIRAL, ANTI-BACTERIAL AND ANTICANCER ACTIVITIES.

CC SUBUNIT: MONOMER (BY SIMILARITY).

CC SUBCELLULAR LOCATION: Secreted.

CC -1- PIM: THIS BETA INTERFERON DOES NOT HAVE A DISULFIDE BOND.

ID	NAME	STANDARD	PRG	1st AA
1NA3	HORSE			
1D	1NA3_HORSE			
AC	P05005			
D1	13-AUG-1987 (Rel. 05, created)			
DT	13-AUG-1987 (Rel. 05, last sequence update)			
DT	13-AUG-1987 (Rel. 01, last annotation update)			
QY	151 LKRF 154			
Db	112 LYOHITELACLSOMGVETTHREHEDTILAVETTCVACLSGTEHETSTAMTVPAFI			
QY	172 MRSP 175			
RESULT	15			

DE Equus caballus (horse).
DS Equisetum: Chlorid; Graminaceae; Equisetaceae.
EC Eukaryota: Metazoa: Chordata: Vertebrata: Euteleostomi:
OC Mammalia: Eutheria: Perissodactyla: Equidae: Equus.
OX NCBI_taxonomy:9796;
RN [1]
SN SOURCE: FROM N.A.
PX MEDLINE=87053170; PubMed=4022939;
RA Himmelfarb A., Hauptmann R., Abolt G.R., Society P.;
RT "Molecular cloning and expression of equine type
I interferons";
RL DNA 5:345-356(1986).
-1 FUNCTION: INDUCED BY MACROPHAGES, IFN ALPHA HAVE ANTIVIRAL,
ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
A PROTEIN KINASE AND AN OLIGONUCLEOTIDE SYNTHETASE.
-1 SUBCELLULAR LOCATION: SECRETED.
-1 SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
FAMILY.

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EMBL: M14542; AAA30951.1;
EMBL: A16555; CAA01292.1;
PIR: G24913; IYHQAF.
HSSP: F01563; 2HIJ.
Interpro: IPRO02471; Interferon_ahd.
Plant_PDB0143; Interferon_1.
RefSeq: NM_001001; Interferon_gab.

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DR PROBABLY 1
DR SKART: SM000076: IPadd: 1
DR PROSITER: PS00252: INTERFERON A,B,C: 1
DR CYCLOKINE: Antiviral: Multigene family: Signal
FT SIGNAL 1 23
FT CHAIN 24 184 INTERFERON ALPHA 1
FT DISULEPID 24 122 BY SIMILARITY
FT DISULEPID 52 162 HY SIMILARITY
FT 184 AA: 20782 MW: 4015091DAA024A CRC64:
50 SEQUENCE

Query Match 29.4% Score 274: DB 1: Length 184:
Best Local Similarity 39.5% Pred. No. 8, 10-15:
Matches 49: Conservative 27: Mismatches 48: Indels 0: Gaps

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11:1
172 MSF 175

Search completed: May 6, 2003, 09:52:46
Job Name: 1-4-0008

Genome version 5.1.4-ps-4578
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OM protein - protein search, using sw model

Run on: May 6 2003, 09:50:42 : Search time 37 seconds
(without alignments)
591,043 Million cell updates/sec

Title: US-09-832-658a-26

Percent score: 867

Sequence: 1 MAYAAL:AIQASSNQVET

EVVLENCYRHELTQLEN 165

Sorting table: HUSUM62

Gapop 10.0, Gapext 0.5

Searched: 283224 seqs, 36134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Inspect first 45 summaries

Database:

1: PIR73:*
2: PIR2:*
3: PIR3:*
4: PIR4:*

Prod. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match length (aa)	Hit ID	Description
1	829	95.6	1 VHB01	Interferon beta 1
2	463.5	53.5	1 VHB01	Interferon beta 1
3	460.5	53.1	1 VHB02	Interferon beta 2
4	426.5	49.2	1 VHB3	Interferon beta 3
5	408.5	47.1	1 VHB3	Interferon beta 3
6	333	38.4	1 VHB3	Interferon beta 3
7	326.5	37.7	1 VHB3	Interferon beta 3
8	288	33.2	1 VHB22	Interferon alpha 1
9	270	31.1	1 VHB21	Interferon alpha 1
10	269	29.6	1 VHB1	Interferon omega 1
11	255.5	29.5	1 VHB1	Interferon alpha 1
12	254	29.3	1 VHB4	Interferon alpha 1
13	254	29.3	1 VHB4	Interferon alpha 1
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15	254	29.2	1 VHB1	Interferon alpha 1
16	254	29.2	1 VHB1	Interferon alpha 1
17	254	29.2	1 VHB1	Interferon alpha 1
18	252.5	29.1	1 VHB1	Interferon omega 1
19	252.5	29.1	1 VHB1	Interferon omega 1
20	252.5	29.1	1 VHB1	Interferon omega 1
21	251.5	29.0	1 VHB1	Interferon alpha 1
22	251.5	29.0	1 VHB1	Interferon alpha 1
23	251	29.0	1 VHB1	Interferon alpha 1
24	251	29.0	1 VHB1	Interferon alpha 1
25	251	29.0	1 VHB1	Interferon alpha 1
26	250	28.8	1 VHB2	Interferon alpha 1
27	247.5	28.5	1 VHB2	Interferon alpha 1
28	247.5	28.5	1 VHB2	Interferon alpha 1
29	245	28.3	1 VHB2	Interferon alpha 1

ALIGNMENTS

RESULT 1
Interferon beta-1 precursor [validated] - human
C:Species: Homo sapiens (man)
C:Date: 18 Aug 1982 #sequence: 18 Aug 1982 #test: 18 Aug 1982 #date: 18 Aug 1982
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Kretzsch, K.
 Nature 299: 606-607, 1981
 A>Title: Assignment of the disulphide bonds of leukocyte interferon.
 A:Reference number: A94244; MIMD:6112084; PMID:612107
 A:Keywords: annotation; disulfide bond
 A:Comment: H.M.; Leung, D.; Stoddard, N.; Goeddel, D.V.
 Nature 294: 563-565, 1981
 A>Title: A single amino acid change in IFN-beta-1 abolishes its antiviral activity.
 A:Reference number: A94249; MIMD:6200684; PMID:6121745
 A:Accession: A94249
 A:Molecule type: mRNA
 A:Accession: 21161; Y:163-187; SHP
 A:Experimental source: variant, clone pF526
 A:Note: The loss of cyst-162 (and of the ability to form the essential disulfide bond) in
 Kridsum, J.; Mizuno, Y.; Hosoi, K.; Okano, K.; Sawada, F.; Kaitani, M.; Sakai, T.; Nak
 Fur, J.; Bloch, M.; 545-553, 1989
 A>Title: Characterization of four different mammalian-cell-derived recombinant human int
 A:Reference number: S04479; MIMD:9276346; PMID:2711547
 A:Accession: S04479
 A>Status: preliminary
 A:Molecule type: protein
 A:Accession: 22167; MIMD:
 A:Key: 1.1.3; Stoddard, D.B.
 A:Interferon Res. 5: 521-526, 1985
 A:Reference number: 156415; MIMD:6603565; PMID:2414376
 A:Accession: 156415
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 A:Accession: 1187; MIMD:
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 A:Gene: GDB:IFN1; IFN1
 A:Cross reference: GB/M6922; NID:4184624; PION:AAA36040.1; PION:q184625
 A:Map position: 9p21-9p21
 A:Superfamily: interferon alpha
 A:Keywords: antiviral
 F1.21/Domains: signal sequence #status predicted <SIG>
 F1.21/Domain: interferon beta-1 #status experimental <MAT>
 F1.21/Disulfide bonds: #status predicted
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 Best Local Similarity 95.6%; Pred. No. 6; 20-62;
 Matches 159; conservative 1; Mismatches 6; Indels 0; Gaps 0;
 QY 1 MAAVAGALQASSNPGYGLIMQINPLEEGLEGRNMFPPERIK2IGYKSCDALITY 60
 DB 22 MKNLAFRQSSNPGYGLIMQINPLEEGLEGRNMFPPERIK2IGYKSCDALITY 61
 QY 61 EMQNFAPFRQSSSTGMNFTVENLANVYQINHLKIVLEPKIEKEDFTGALMSSL 120
 DB 82 EMQNFAPFRQSSSTGMNFTVENLANVYQINHLKIVLEPKIEKEDFTGALMSSL 141
 QY 141 HKEFYVPEELIYVFAKATYCWAMTIVAVGLTASVYINRITGIKRN 166
 DB 142 HKEFYVPEELIYVFAKATYCWAMTIVAVGLTASVYINRITGIKRN 187
 RESULT 2
 IVD081
 Interferon beta-1 precursor - horse
 N:Accession: A09356; MIMD:8705170; PMID:4022999
 C:Species: Equus caballus (domestic horse)
 C:Date: 28 Jan 1987; #sequence: revision 28 Jan 1987 #text change 22 Jan 1999
 C:Accession: 424912
 C:Comment: A.; Haugflam, K.; Adolf, G.K.; Sweetly, P.
 Nature 345: 456-456, 1996
 A>Title: Molecular cloning and expression in Escherichia coli of equine type 1 interferon
 A:Reference number: A90956; MIMD:8705170; PMID:4022999
 A:Accession: 624912
 A:Molecule type: mRNA
 A:Accession: 1186; MIMD:
 A:Cross reference: GB/M14546; NID:4164226; PION:AAA29954.1; PION:q142299

C:Superfamily: Interferon alpha
 C:Keywords: antiviral; glycoprotein
 F1.21/Domains: signal sequence #status predicted <SIG>
 F1.21/Domain: interferon beta-1 #status predicted <MAT>
 F1.21/Disulfide bonds: #status predicted
 Query Match 53.5%; Score 461.5; DB 1; Length 186;
 Best Local Similarity 57.9%; Pred. No. 1; 50-41;
 Matches 95; conservative 25; Mismatches 43; Indels 1; Gaps 1;
 QY 3 YAAVAGALQASSNPGYGLIMQINPLEEGLEGRNMFPPERIK2IGYKSCDALITY 62
 DB 24 YDLRFRQSSNPGYGLIMQINPLEEGLEGRNMFPPERIK2IGYKSCDALITY 83
 QY 63 EMQNFAPFRQSSSTGMNFTVENLANVYQINHLKIVLEPKIEKEDFTGALMSSL 122
 DB 84 EMQNFAPFRQSSSTGMNFTVENLANVYQINHLKIVLEPKIEKEDFTGALMSSL 142
 QY 123 KRYVGRILHLYLAKREYSHGAMTIVAVGLTASVYINRITGIKRN 166
 DB 143 KRYVGRILHLYLAKREYSHGAMTIVAVGLTASVYINRITGIKRN 186
 RESULT 3
 IVD082
 Interferon beta-2 precursor - bovine
 C:Species: Bos primigenius taurus (cattle)
 C:Date: 15 Nov 1984; #sequence: revision 15 Nov 1984 #text change 07 Feb 1997
 C:Accession: A01840
 R:Leung, D.W.; Capon, D.J.; Goeddel, D.V.
 Bio/Technology 2: 458-464, 1984
 A>Title: The structure and bacterial expression of three distinct bovine interferon-b
 A:Reference number: A90997
 A:Accession: A01840
 A:Molecule type: DNA
 A:Accession: 1-186; LEU5
 Query Match 53.1%; Score 460.5; DB 1; Length 186;
 Best Local Similarity 54.9%; Pred. No. 2; 70-31;
 Matches 90; conservative 31; Mismatches 42; Indels 1; Gaps 1;
 QY 2 AYAAGALQASSNPGYGLIMQINPLEEGLEGRNMFPPERIK2IGYKSCDALITY 61
 DB 23 SYSLRFRQSSNPGYGLIMQINPLEEGLEGRNMFPPERIK2IGYKSCDALITY 82
 QY 62 EMQNFAPFRQSSSTGMNFTVENLANVYQINHLKIVLEPKIEKEDFTGALMSSL 121
 DB 83 EMQNFAPFRQSSSTGMNFTVENLANVYQINHLKIVLEPKIEKEDFTGALMSSL 141
 QY 141 HKEFYVPEELIYVFAKATYCWAMTIVAVGLTASVYINRITGIKRN 165
 DB 142 HKEFYVPEELIYVFAKATYCWAMTIVAVGLTASVYINRITGIKRN 185
 RESULT 4
 IVD083
 Interferon beta-3 precursor - bovine
 C:Species: Bos primigenius taurus (cattle)
 C:Date: 15 Nov 1984; #sequence: revision 15 Nov 1984 #text change 07 Feb 1997
 C:Accession: A01841
 R:Leung, D.W.; Capon, D.J.; Goeddel, D.V.
 Bio/Technology 2: 458-464, 1984
 A>Title: The structure and bacterial expression of three distinct bovine interferon-b
 A:Reference number: A90997
 A:Accession: A01841
 A:Molecule type: DNA
 A:Accession: 1-186; LEU5


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C>Date: 28-Dec-1987 #sequence_revision 28-dec-1987 #text_change 18-Jun-1999
C:/Accession: D24912
R:Himmler, A.; Hauptmann, R.; Adolf, G.R.; Swelly, P.
DNA 5, 345-356, 1986
ATTfile: Molecular cloning and expression in Escherichia coli of equine type I interferon
A:Reference number: A00956; MUID:8705170; PMID:3022999
A:Accession: D24912
A:Accession type: CNA
A:Residues: 1-184 SHIS
A:Cross references: GB:M14543; NID:g164224; PIDN:AAB30552.1; PID:g164224
C:Superfamily: Interferon alpha
C:Keywords: antiviral
F14-184/Product: Interferon alpha-1-4 #status predicted <MAT>
F14-122/222/250/Life: Products #status predicted
Query Match          29.3% Score 254; DB 1; Length 184;
Best Local Similarity 39.5%; Pred. No. 4; Le 14;
Matches 43; Conserved 27; Mismatches 48; Indels 0; Gaps 0;
31 CLKPMNPDIPELTKVLOQYCNALADITVMGHIATIFCSYSTNNELIVENILAN 90
||||| | | | | | | | | | | | | | | | | | | | | | | | | |
Db 52 CLPYNMPTFTFCVFGRFRKQVALSAVEETLWTFHTPSHSSAAVRPESLLKLYIG 111
91 VINDINLRKVLEKELEKDPYRWALMSCHERVAEGLIHYFAKRYSHAMTVAVEL 150
|| || | | | | | | | | | | | | | | | | | | | | | | | |
Db 112 LYQDTTTPFAVTSQEVVERETPMNMHSILAVERGRITLIYDPRKYSGVAMTVASPI 171
QY 151 LRNF 154
|||
Db 172 MRSF 175

RESULT 13
IVHOA3
Interferon alpha-1-3 precursor - horse
N:Alternate names: EqIFN-alpha-1-3; Type I Interferon
C:Species: Equus caballus (domestic horse)
C:Date: 28-Dec-1987 #sequence_revision 28-Dec-1987 #text_change 18-Jun-1999
C:Accession: C24912
R:Himmler, A.; Hauptmann, R.; Adolf, G.R.; Swelly, P.
DNA 5, 345-356, 1986
ATTfile: Molecular cloning and expression in Escherichia coli of equine type I interferon
A:Reference number: A00956; MUID:8705170; PMID:3022999
A:Accession: C24912
A:Accession type: CNA
A:Residues: 1-184 <SHIS>
A:Cross references: GB:M14543; NID:g164224; PIDN:AAB30552.1; PID:g164224
C:Superfamily: Interferon alpha
C:Keywords: antiviral
F14-184/Product: Interferon alpha-1-4 #status predicted <MAT>
F14-122/222/250/Life: Products #status predicted
Query Match          29.3% Score 254; DB 1; Length 184;
Best Local Similarity 39.5%; Pred. No. 4; Le 14;
Matches 43; Conserved 27; Mismatches 48; Indels 0; Gaps 0;
31 CLKPMNPDIPELTKVLOQYCNALADITVMGHIATIFCSYSTNNELIVENILAN 90
||||| | | | | | | | | | | | | | | | | | | | | | | | | |
Db 52 CLPYNMPTFTFCVFGRFRKQVALSAVEETLWTFHTPSHSSAAVRPESLLKLYIG 111
91 VINDINLRKVLEKELEKDPYRWALMSCHERVAEGLIHYFAKRYSHAMTVAVEL 150
|| || | | | | | | | | | | | | | | | | | | | | | | | |
Db 112 LYQDTTTPFAVTSQEVVERETPMNMHSILAVERGRITLIYDPRKYSGVAMTVASPI 171
QY 151 LRNF 154
|||
Db 172 MRSF 175

RESULT 14
IVHOA1

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15 OCT 1999; 99WO 0824201.
 XX
 16 OCT 1998; 98OS 0104572.
 16 FEB 1999; 99OS 0120161.
 XX
 (b)(4) (b)(7)(E) INC.
 XX
 Polunsky B, Runkel L, HrickoImajer M, Whitty A, Boehman P;
 XX
 WIT: 2000 43664/29
 XX
 New glycosylated interferon beta Ia coupled to a non-naturally
 occurring polymer containing a polyalkylene glycol useful for treating
 viral diseases, autoimmune disorders, viral infections and neoplastic
 diseases
 XX
 Example 1: Page 7: 74pp; English.

AAV4960 64 represent alanine mutants of human interferon beta Ia
 (IFN beta) protein. The protein is used to produce a composition
 comprising a glycosylated IFN beta coupled to a non-naturally-occurring
 polymer containing a polyalkylene glycol. The composition has enhanced
 activity, measured by an antiviral assay, as compared to physiologically
 active IFN beta. The polymer-IFN beta conjugate has the ability to
 stay in the vasculature for longer periods of time, has increased
 stability in solution, reduced immunogenicity, protection of the
 modified IFN beta Ia from proteolytic digestion and subsequent abolition
 activity, and increased thermal stability. The polymer-based conjugates
 are useful for treating tumors and cancer, as well as autoimmune
 conditions such as fibrosis, lupus and multiple sclerosis. These may also
 be used in the treatment of viral diseases, as well as in the treatment
 of autoimmune diseases. IFN beta is useful as an agent for the
 treatment, remission or attenuation of a disease state, physiological
 condition, symptoms or etiological factors, or for their evaluation or
 diagnosis. The IFN beta polymer conjugates may also be used for
 prophylaxis or treatment of any condition or disease state for which the
 IFN beta constituent is efficacious. In biological systems or
 specimens, note: The present sequence does not appear in the
 specification; it was created using information provided.

Sequence: 166 AA;

Query Match: 100.0%; Score: 867; 108 AL; Length: 166;
 best local similarity: 100.0%; Prod. No.: 1-20-72;
 Matches: 166; Conservative: 0; Mismatches: 0; Indels: 0; Gaps: 0;

1 MAAVALALALASSNNE¹GR²W³W⁴N⁵GL⁶Y⁷Y⁸Y⁹Y¹⁰Y¹¹Y¹²Y¹³Y¹⁴Y¹⁵Y¹⁶Y¹⁷Y¹⁸Y¹⁹Y²⁰Y²¹Y²²Y²³Y²⁴Y²⁵Y²⁶Y²⁷Y²⁸Y²⁹Y³⁰Y³¹Y³²Y³³Y³⁴Y³⁵Y³⁶Y³⁷Y³⁸Y³⁹Y⁴⁰Y⁴¹Y⁴²Y⁴³Y⁴⁴Y⁴⁵Y⁴⁶Y⁴⁷Y⁴⁸Y⁴⁹Y⁵⁰Y⁵¹Y⁵²Y⁵³Y⁵⁴Y⁵⁵Y⁵⁶Y⁵⁷Y⁵⁸Y⁵⁹Y⁶⁰Y⁶¹Y⁶²Y⁶³Y⁶⁴Y⁶⁵Y⁶⁶Y⁶⁷Y⁶⁸Y⁶⁹Y⁷⁰Y⁷¹Y⁷²Y⁷³Y⁷⁴Y⁷⁵Y⁷⁶Y⁷⁷Y⁷⁸Y⁷⁹Y⁸⁰Y⁸¹Y⁸²Y⁸³Y⁸⁴Y⁸⁵Y⁸⁶Y⁸⁷Y⁸⁸Y⁸⁹Y⁹⁰Y⁹¹Y⁹²Y⁹³Y⁹⁴Y⁹⁵Y⁹⁶Y⁹⁷Y⁹⁸Y⁹⁹Y¹⁰⁰Y¹⁰¹Y¹⁰²Y¹⁰³Y¹⁰⁴Y¹⁰⁵Y¹⁰⁶Y¹⁰⁷Y¹⁰⁸Y¹⁰⁹Y¹¹⁰Y¹¹¹Y¹¹²Y¹¹³Y¹¹⁴Y¹¹⁵Y¹¹⁶Y¹¹⁷Y¹¹⁸Y¹¹⁹Y¹²⁰Y¹²¹Y¹²²Y¹²³Y¹²⁴Y¹²⁵Y¹²⁶Y¹²⁷Y¹²⁸Y¹²⁹Y¹³⁰Y¹³¹Y¹³²Y¹³³Y¹³⁴Y¹³⁵Y¹³⁶Y¹³⁷Y¹³⁸Y¹³⁹Y¹⁴⁰Y¹⁴¹Y¹⁴²Y¹⁴³Y¹⁴⁴Y¹⁴⁵Y¹⁴⁶Y¹⁴⁷Y¹⁴⁸Y¹⁴⁹Y¹⁵⁰Y¹⁵¹Y¹⁵²Y¹⁵³Y¹⁵⁴Y¹⁵⁵Y¹⁵⁶Y¹⁵⁷Y¹⁵⁸Y¹⁵⁹Y¹⁶⁰Y¹⁶¹Y¹⁶²Y¹⁶³Y¹⁶⁴Y¹⁶⁵Y¹⁶⁶Y¹⁶⁷Y¹⁶⁸Y¹⁶⁹Y¹⁷⁰Y¹⁷¹Y¹⁷²Y¹⁷³Y¹⁷⁴Y¹⁷⁵Y¹⁷⁶Y¹⁷⁷Y¹⁷⁸Y¹⁷⁹Y¹⁸⁰Y¹⁸¹Y¹⁸²Y¹⁸³Y¹⁸⁴Y¹⁸⁵Y¹⁸⁶Y¹⁸⁷Y¹⁸⁸Y¹⁸⁹Y¹⁹⁰Y¹⁹¹Y¹⁹²Y¹⁹³Y¹⁹⁴Y¹⁹⁵Y¹⁹⁶Y¹⁹⁷Y¹⁹⁸Y¹⁹⁹Y²⁰⁰Y²⁰¹Y²⁰²Y²⁰³Y²⁰⁴Y²⁰⁵Y²⁰⁶Y²⁰⁷Y²⁰⁸Y²⁰⁹Y²¹⁰Y²¹¹Y²¹²Y²¹³Y²¹⁴Y²¹⁵Y²¹⁶Y²¹⁷Y²¹⁸Y²¹⁹Y²²⁰Y²²¹Y²²²Y²²³Y²²⁴Y²²⁵Y²²⁶Y²²⁷Y²²⁸Y²²⁹Y²³⁰Y²³¹Y²³²Y²³³Y²³⁴Y²³⁵Y²³⁶Y²³⁷Y²³⁸Y²³⁹Y²⁴⁰Y²⁴¹Y²⁴²Y²⁴³Y²⁴⁴Y²⁴⁵Y²⁴⁶Y²⁴⁷Y²⁴⁸Y²⁴⁹Y²⁵⁰Y²⁵¹Y²⁵²Y²⁵³Y²⁵⁴Y²⁵⁵Y²⁵⁶Y²⁵⁷Y²⁵⁸Y²⁵⁹Y²⁶⁰Y²⁶¹Y²⁶²Y²⁶³Y²⁶⁴Y²⁶⁵Y²⁶⁶Y²⁶⁷Y²⁶⁸Y²⁶⁹Y²⁷⁰Y²⁷¹Y²⁷²Y²⁷³Y²⁷⁴Y²⁷⁵Y²⁷⁶Y²⁷⁷Y²⁷⁸Y²⁷⁹Y²⁸⁰Y²⁸¹Y²⁸²Y²⁸³Y²⁸⁴Y²⁸⁵Y²⁸⁶Y²⁸⁷Y²⁸⁸Y²⁸⁹Y²⁹⁰Y²⁹¹Y²⁹²Y²⁹³Y²⁹⁴Y²⁹⁵Y²⁹⁶Y²⁹⁷Y²⁹⁸Y²⁹⁹Y³⁰⁰Y³⁰¹Y³⁰²Y³⁰³Y³⁰⁴Y³⁰⁵Y³⁰⁶Y³⁰⁷Y³⁰⁸Y³⁰⁹Y³¹⁰Y³¹¹Y³¹²Y³¹³Y³¹⁴Y³¹⁵Y³¹⁶Y³¹⁷Y³¹⁸Y³¹⁹Y³²⁰Y³²¹Y³²²Y³²³Y³²⁴Y³²⁵Y³²⁶Y³²⁷Y³²⁸Y³²⁹Y³³⁰Y³³¹Y³³²Y³³³Y³³⁴Y³³⁵Y³³⁶Y³³⁷Y³³⁸Y³³⁹Y³⁴⁰Y³⁴¹Y³⁴²Y³⁴³Y³⁴⁴Y³⁴⁵Y³⁴⁶Y³⁴⁷Y³⁴⁸Y³⁴⁹Y³⁵⁰Y³⁵¹Y³⁵²Y³⁵³Y³⁵⁴Y³⁵⁵Y³⁵⁶Y³⁵⁷Y³⁵⁸Y³⁵⁹Y³⁶⁰Y³⁶¹Y³⁶²Y³⁶³Y³⁶⁴Y³⁶⁵Y³⁶⁶Y³⁶⁷Y³⁶⁸Y³⁶⁹Y³⁷⁰Y³⁷¹Y³⁷²Y³⁷³Y³⁷⁴Y³⁷⁵Y³⁷⁶Y³⁷⁷Y³⁷⁸Y³⁷⁹Y³⁸⁰Y³⁸¹Y³⁸²Y³⁸³Y³⁸⁴Y³⁸⁵Y³⁸⁶Y³⁸⁷Y³⁸⁸Y³⁸⁹Y³⁹⁰Y³⁹¹Y³⁹²Y³⁹³Y³⁹⁴Y³⁹⁵Y³⁹⁶Y³⁹⁷Y³⁹⁸Y³⁹⁹Y⁴⁰⁰Y⁴⁰¹Y⁴⁰²Y⁴⁰³Y⁴⁰⁴Y⁴⁰⁵Y⁴⁰⁶Y⁴⁰⁷Y⁴⁰⁸Y⁴⁰⁹Y⁴¹⁰Y⁴¹¹Y⁴¹²Y⁴¹³Y⁴¹⁴Y⁴¹⁵Y⁴¹⁶Y⁴¹⁷Y⁴¹⁸Y⁴¹⁹Y⁴²⁰Y⁴²¹Y⁴²²Y⁴²³Y⁴²⁴Y⁴²⁵Y⁴²⁶Y⁴²⁷Y⁴²⁸Y⁴²⁹Y⁴³⁰Y⁴³¹Y⁴³²Y⁴³³Y⁴³⁴Y⁴³⁵Y⁴³⁶Y⁴³⁷Y⁴³⁸Y⁴³⁹Y⁴⁴⁰Y⁴⁴¹Y⁴⁴²Y⁴⁴³Y⁴⁴⁴Y⁴⁴⁵Y⁴⁴⁶Y⁴⁴⁷Y⁴⁴⁸Y⁴⁴⁹Y⁴⁵⁰Y⁴⁵¹Y⁴⁵²Y⁴⁵³Y⁴⁵⁴Y⁴⁵⁵Y⁴⁵⁶Y⁴⁵⁷Y⁴⁵⁸Y⁴⁵⁹Y⁴⁶⁰Y⁴⁶¹Y⁴⁶²Y⁴⁶³Y⁴⁶⁴Y⁴⁶⁵Y⁴⁶⁶Y⁴⁶⁷Y⁴⁶⁸Y⁴⁶⁹Y⁴⁷⁰Y⁴⁷¹Y⁴⁷²Y⁴⁷³Y⁴⁷⁴Y⁴⁷⁵Y⁴⁷⁶Y⁴⁷⁷Y⁴⁷⁸Y⁴⁷⁹Y⁴⁸⁰Y⁴⁸¹Y⁴⁸²Y⁴⁸³Y⁴⁸⁴Y⁴⁸⁵Y⁴⁸⁶Y⁴⁸⁷Y⁴⁸⁸Y⁴⁸⁹Y⁴⁹⁰Y⁴⁹¹Y⁴⁹²Y⁴⁹³Y⁴⁹⁴Y⁴⁹⁵Y⁴⁹⁶Y⁴⁹⁷Y⁴⁹⁸Y⁴⁹⁹Y⁵⁰⁰Y⁵⁰¹Y⁵⁰²Y⁵⁰³Y⁵⁰⁴Y⁵⁰⁵Y⁵⁰⁶Y⁵⁰⁷Y⁵⁰⁸Y⁵⁰⁹Y⁵¹⁰Y⁵¹¹Y⁵¹²Y⁵¹³Y⁵¹⁴Y⁵¹⁵Y⁵¹⁶Y⁵¹⁷Y⁵¹⁸Y⁵¹⁹Y⁵²⁰Y⁵²¹Y⁵²²Y⁵²³Y⁵²⁴Y⁵²⁵Y⁵²⁶Y⁵²⁷Y⁵²⁸Y⁵²⁹Y⁵³⁰Y⁵³¹Y⁵³²Y⁵³³Y⁵³⁴Y⁵³⁵Y⁵³⁶Y⁵³⁷Y⁵³⁸Y⁵³⁹Y⁵⁴⁰Y⁵⁴¹Y⁵⁴²Y⁵⁴³Y⁵⁴⁴Y⁵⁴⁵Y⁵⁴⁶Y⁵⁴⁷Y⁵⁴⁸Y⁵⁴⁹Y⁵⁵⁰Y⁵⁵¹Y⁵⁵²Y⁵⁵³Y⁵⁵⁴Y⁵⁵⁵Y⁵⁵⁶Y⁵⁵⁷Y⁵⁵⁸Y⁵⁵⁹Y⁵⁶⁰Y⁵⁶¹Y⁵⁶²Y⁵⁶³Y⁵⁶⁴Y⁵⁶⁵Y⁵⁶⁶Y⁵⁶⁷Y⁵⁶⁸Y⁵⁶⁹Y⁵⁷⁰Y⁵⁷¹Y⁵⁷²Y⁵⁷³Y⁵⁷⁴Y⁵⁷⁵Y⁵⁷⁶Y⁵⁷⁷Y⁵⁷⁸Y⁵⁷⁹Y⁵⁸⁰Y⁵⁸¹Y⁵⁸²Y⁵⁸³Y⁵⁸⁴Y⁵⁸⁵Y⁵⁸⁶Y⁵⁸⁷Y⁵⁸⁸Y⁵⁸⁹Y⁵⁹⁰Y⁵⁹¹Y⁵⁹²Y⁵⁹³Y⁵⁹⁴Y⁵⁹⁵Y⁵⁹⁶Y⁵⁹⁷Y⁵⁹⁸Y⁵⁹⁹Y⁶⁰⁰Y⁶⁰¹Y⁶⁰²Y⁶⁰³Y⁶⁰⁴Y⁶⁰⁵Y⁶⁰⁶Y⁶⁰⁷Y⁶⁰⁸Y⁶⁰⁹Y⁶¹⁰Y⁶¹¹Y⁶¹²Y⁶¹³Y⁶¹⁴Y⁶¹⁵Y⁶¹⁶Y⁶¹⁷Y⁶¹⁸Y⁶¹⁹Y⁶²⁰Y⁶²¹Y⁶²²Y⁶²³Y⁶²⁴Y⁶²⁵Y⁶²⁶Y⁶²⁷Y⁶²⁸Y⁶²⁹Y⁶³⁰Y⁶³¹Y⁶³²Y⁶³³Y⁶³⁴Y⁶³⁵Y⁶³⁶Y⁶³⁷Y⁶³⁸Y⁶³⁹Y⁶⁴⁰Y⁶⁴¹Y⁶⁴²Y⁶⁴³Y⁶⁴⁴Y⁶⁴⁵Y⁶⁴⁶Y⁶⁴⁷Y⁶⁴⁸Y⁶⁴⁹Y⁶⁵⁰Y⁶⁵¹Y⁶⁵²Y⁶⁵³Y⁶⁵⁴Y⁶⁵⁵Y⁶⁵⁶Y⁶⁵⁷Y⁶⁵⁸Y⁶⁵⁹Y⁶⁶⁰Y⁶⁶¹Y⁶⁶²Y⁶⁶³Y⁶⁶⁴Y⁶⁶⁵Y⁶⁶⁶Y⁶⁶⁷Y⁶⁶⁸Y⁶⁶⁹Y⁶⁷⁰Y⁶⁷¹Y⁶⁷²Y⁶⁷³Y⁶⁷⁴Y⁶⁷⁵Y⁶⁷⁶Y⁶⁷⁷Y⁶⁷⁸Y⁶⁷⁹Y⁶⁸⁰Y⁶⁸¹Y⁶⁸²Y⁶⁸³Y⁶⁸⁴Y⁶⁸⁵Y⁶⁸⁶Y⁶⁸⁷Y⁶⁸⁸Y⁶⁸⁹Y⁶⁹⁰Y⁶⁹¹Y⁶⁹²Y⁶⁹³Y⁶⁹⁴Y⁶⁹⁵Y⁶⁹⁶Y⁶⁹⁷Y⁶⁹⁸Y⁶⁹⁹Y⁷⁰⁰Y⁷⁰¹Y⁷⁰²Y⁷⁰³Y⁷⁰⁴Y⁷⁰⁵Y⁷⁰⁶Y⁷⁰⁷Y⁷⁰⁸Y⁷⁰⁹Y⁷¹⁰Y⁷¹¹Y⁷¹²Y⁷¹³Y⁷¹⁴Y⁷¹⁵Y⁷¹⁶Y⁷¹⁷Y⁷¹⁸Y⁷¹⁹Y⁷²⁰Y⁷²¹Y⁷²²Y⁷²³Y⁷²⁴Y⁷²⁵Y⁷²⁶Y⁷²⁷Y⁷²⁸Y⁷²⁹Y⁷³⁰Y⁷³¹Y⁷³²Y⁷³³Y⁷³⁴Y⁷³⁵Y⁷³⁶Y⁷³⁷Y⁷³⁸Y⁷³⁹Y⁷⁴⁰Y⁷⁴¹Y⁷⁴²Y⁷⁴³Y⁷⁴⁴Y⁷⁴⁵Y⁷⁴⁶Y⁷⁴⁷Y⁷⁴⁸Y⁷⁴⁹Y⁷⁵⁰Y⁷⁵¹Y⁷⁵²Y⁷⁵³Y⁷⁵⁴Y⁷⁵⁵Y⁷⁵⁶Y⁷⁵⁷Y⁷⁵⁸Y⁷⁵⁹Y⁷⁶⁰Y⁷⁶¹Y⁷⁶²Y⁷⁶³Y⁷⁶⁴Y⁷⁶⁵Y⁷⁶⁶Y⁷⁶⁷Y⁷⁶⁸Y⁷⁶⁹Y⁷⁷⁰Y⁷⁷¹Y⁷⁷²Y⁷⁷³Y⁷⁷⁴Y⁷⁷⁵Y⁷⁷⁶Y⁷⁷⁷Y⁷⁷⁸Y⁷⁷⁹Y⁷⁸⁰Y⁷⁸¹Y⁷⁸²Y⁷⁸³Y⁷⁸⁴Y⁷⁸⁵Y⁷⁸⁶Y⁷⁸⁷Y⁷⁸⁸Y⁷⁸⁹Y⁷⁹⁰Y⁷⁹¹Y⁷⁹²Y⁷⁹³Y⁷⁹⁴Y⁷⁹⁵Y⁷⁹⁶Y⁷⁹⁷Y⁷⁹⁸Y⁷⁹⁹Y⁸⁰⁰Y⁸⁰¹Y⁸⁰²Y⁸⁰³Y⁸⁰⁴Y⁸⁰⁵Y⁸⁰⁶Y⁸⁰⁷Y⁸⁰⁸Y⁸⁰⁹Y⁸¹⁰Y⁸¹¹Y⁸¹²Y⁸¹³Y⁸¹⁴Y⁸¹⁵Y⁸¹⁶Y⁸¹⁷Y⁸¹⁸Y⁸¹⁹Y⁸²⁰Y⁸²¹Y⁸²²Y⁸²³Y⁸²⁴Y⁸²⁵Y⁸²⁶Y⁸²⁷Y⁸²⁸Y⁸²⁹Y⁸³⁰Y⁸³¹Y⁸³²Y⁸³³Y⁸³⁴Y⁸³⁵Y⁸³⁶Y⁸³⁷Y⁸³⁸Y⁸³⁹Y⁸⁴⁰Y⁸⁴¹Y⁸⁴²Y⁸⁴³Y⁸⁴⁴Y⁸⁴⁵Y⁸⁴⁶Y⁸⁴⁷Y⁸⁴⁸Y⁸⁴⁹Y⁸⁵⁰Y⁸⁵¹Y⁸⁵²Y⁸⁵³Y⁸⁵⁴Y⁸⁵⁵Y⁸⁵⁶Y⁸⁵⁷Y⁸⁵⁸Y⁸⁵⁹Y⁸⁶⁰Y⁸⁶¹Y⁸⁶²Y⁸⁶³Y⁸⁶⁴Y⁸⁶⁵Y⁸⁶⁶Y⁸⁶⁷Y⁸⁶⁸Y⁸⁶⁹Y⁸⁷⁰Y⁸⁷¹Y⁸⁷²Y⁸⁷³Y⁸⁷⁴Y⁸⁷⁵Y⁸⁷⁶Y⁸⁷⁷Y⁸⁷⁸Y⁸⁷⁹Y⁸⁸⁰Y⁸⁸¹Y⁸⁸²Y⁸⁸³Y⁸⁸⁴Y⁸⁸⁵Y⁸⁸⁶Y⁸⁸⁷Y⁸⁸⁸Y⁸⁸⁹Y⁸⁹⁰Y⁸⁹¹Y⁸⁹²Y⁸⁹³Y⁸⁹⁴Y⁸⁹⁵Y⁸⁹⁶Y⁸⁹⁷Y⁸⁹⁸Y⁸⁹⁹Y⁹⁰⁰Y⁹⁰¹Y⁹⁰²Y⁹⁰³Y⁹⁰⁴Y⁹⁰⁵Y⁹⁰⁶Y⁹⁰⁷Y⁹⁰⁸Y⁹⁰⁹Y⁹¹⁰Y⁹¹¹Y⁹¹²Y⁹¹³Y⁹¹⁴Y⁹¹⁵Y⁹¹⁶Y⁹¹⁷Y⁹¹⁸Y⁹¹⁹Y⁹²⁰Y⁹²¹Y⁹²²Y⁹²³Y⁹²⁴Y⁹²⁵Y⁹²⁶Y⁹²⁷Y⁹²⁸Y⁹²⁹Y⁹³⁰Y⁹³¹Y⁹³²Y⁹³³Y⁹³⁴Y⁹³⁵Y⁹³⁶Y⁹³⁷Y⁹³⁸Y⁹³⁹Y⁹⁴⁰Y⁹⁴¹Y⁹⁴²Y⁹⁴³Y⁹⁴⁴Y⁹⁴⁵Y⁹⁴⁶Y⁹⁴⁷Y⁹⁴⁸Y⁹⁴⁹Y⁹⁵⁰Y⁹⁵¹Y⁹⁵²Y⁹⁵³Y⁹⁵⁴Y⁹⁵⁵Y⁹⁵⁶Y⁹⁵⁷Y⁹⁵⁸Y⁹⁵⁹Y⁹⁶⁰Y⁹⁶¹Y⁹⁶²Y⁹⁶³Y⁹⁶⁴Y⁹⁶⁵Y⁹⁶⁶Y⁹⁶⁷Y⁹⁶⁸Y⁹⁶⁹Y⁹⁷⁰Y⁹⁷¹Y⁹⁷²Y⁹⁷³Y⁹⁷⁴Y⁹⁷⁵Y⁹⁷⁶Y⁹⁷⁷Y⁹⁷⁸Y⁹⁷⁹Y⁹⁸⁰Y⁹⁸¹Y⁹⁸²Y⁹⁸³Y⁹⁸⁴Y⁹⁸⁵Y⁹⁸⁶Y⁹⁸⁷Y⁹⁸⁸Y⁹⁸⁹Y⁹⁹⁰Y⁹⁹¹Y⁹⁹²Y⁹⁹³Y⁹⁹⁴Y⁹⁹⁵Y⁹⁹⁶Y⁹⁹⁷Y⁹⁹⁸Y⁹⁹⁹Y¹⁰⁰⁰Y¹⁰⁰¹Y¹⁰⁰²Y¹⁰⁰³Y¹⁰⁰⁴Y¹⁰⁰⁵Y¹⁰⁰⁶Y¹⁰⁰⁷Y¹⁰⁰⁸Y¹⁰⁰⁹Y¹⁰¹⁰Y¹⁰¹¹Y¹⁰¹²Y¹⁰¹³Y¹⁰¹⁴Y¹⁰¹⁵Y¹⁰¹⁶Y¹⁰¹⁷Y¹⁰¹⁸Y¹⁰¹⁹Y¹⁰²⁰Y¹⁰²¹Y¹⁰²²Y¹⁰²³Y¹⁰²⁴Y¹⁰²⁵Y¹⁰²⁶Y¹⁰²⁷Y¹⁰²⁸Y¹⁰²⁹Y¹⁰³⁰Y¹⁰³¹Y¹⁰³²Y¹⁰³³Y¹⁰³⁴Y¹⁰³⁵Y¹⁰³⁶Y¹⁰³⁷Y¹⁰³⁸Y¹⁰³⁹Y¹⁰⁴⁰Y¹⁰⁴¹Y¹⁰⁴²Y¹⁰⁴³Y¹⁰⁴⁴Y¹⁰⁴⁵Y¹⁰⁴⁶Y¹⁰⁴⁷Y¹⁰⁴⁸Y¹⁰⁴⁹Y¹⁰⁵⁰Y¹⁰⁵¹Y¹⁰⁵²Y¹⁰⁵³Y¹⁰⁵⁴Y¹⁰⁵⁵Y¹⁰⁵⁶Y¹⁰⁵⁷Y¹⁰⁵⁸Y¹⁰⁵⁹Y¹⁰⁶⁰Y¹⁰⁶¹Y¹⁰⁶²Y¹⁰⁶³Y¹⁰⁶⁴Y¹⁰⁶⁵Y¹⁰⁶⁶Y¹⁰⁶⁷Y¹⁰⁶⁸Y¹⁰⁶⁹Y¹⁰⁷⁰Y¹⁰⁷¹Y¹⁰⁷²Y¹⁰⁷³Y¹⁰⁷⁴Y¹⁰⁷⁵Y¹⁰⁷⁶Y¹⁰⁷⁷Y¹⁰⁷⁸Y¹⁰⁷⁹Y¹⁰⁸⁰Y¹⁰⁸¹Y¹⁰⁸²Y¹⁰⁸³Y¹⁰⁸⁴Y¹⁰⁸⁵Y¹⁰⁸⁶Y¹⁰⁸⁷Y¹⁰⁸⁸Y¹⁰⁸⁹Y¹⁰⁹⁰Y¹⁰⁹¹Y¹⁰⁹²Y¹⁰⁹³Y¹⁰⁹⁴Y¹⁰⁹⁵Y¹⁰⁹⁶Y¹⁰⁹⁷Y¹⁰⁹⁸Y¹⁰⁹⁹Y¹¹⁰⁰Y¹¹⁰¹Y¹¹⁰²Y¹¹⁰³Y¹¹⁰⁴Y¹¹⁰⁵Y¹¹⁰⁶Y¹¹⁰⁷Y¹¹⁰⁸Y¹¹⁰⁹Y¹¹¹⁰Y¹¹¹¹Y¹¹¹²Y¹¹¹³Y¹¹¹⁴Y¹¹¹⁵Y¹¹¹⁶Y¹¹¹⁷Y¹¹¹⁸Y¹¹¹⁹Y¹¹²⁰Y¹¹²¹Y¹¹²²Y¹¹²³Y¹¹²⁴Y¹¹²⁵Y¹¹²⁶Y¹¹²⁷Y¹¹²⁸Y¹¹²⁹Y¹¹³⁰Y¹¹³¹Y¹¹³²Y¹¹³³


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PE 15-OCT-1999; 99W0-0524200.
XX
XX 16-OCT-1998; 980S-0104491.
PR 16-FEB-1999; 990S-0120237.
XX
XX (BIOJ) BIOGEN INC.
PA
XX Whittly A. 9999911; Httckelmaier M. Hochman P;
XX WPI: 2000-339654/29.
XX
XX Fusion proteins comprising interferon-beta-1a useful for inhibiting
PT angiogenesis -
XX
XX Example 1; Page 7; 82pp; English.
XX
XX The patent discloses fusion proteins comprising glycosylated
CC interferon-beta (IFN-beta) especially IFN-beta-1a, linker groups and
CC non-IFN beta proteins, especially an immunoglobulin (Ig) protein. The
CC fusion protein is useful for inhibiting angiogenesis in a patient.
CC It may also be used to treat multiple sclerosis, fibrosis, inflammatory
CC and autoimmune diseases, cancers, hepatitis and viral infection
CC characterised by neovascularisation. The present sequence is
CC a human interferon-beta alanine substituted mutant H97A.
CC The mutant was analysed in antiviral assays to assess the effects
CC of mutating the histidines which chelate zinc in the crystal structure
CC dimer. The His mutants retained wild type activity suggesting that
CC zinc-mediated dimer formation is not important for IFN-beta activity
CC Note: the present sequence is not shown in the specification but is
CC derived from wild type human IFN-beta sequence found in page 36
CC (AAV70871).
XX
XX Sequence 166 AA:
SU
Query Match 96.0%; Score 832; DB 21; Length 166;
Best Local Similarity 96.4%; Pred. No. 2e-69;
Matches 160; Conservative 1; Mismatches 5; Indels 0; Gaps 0;
QY 1 MAAVALGACASSHFGQKIMQKHCSELYGCKEMNNTIPPTKQDQDFKMAATLY 60
DB 1 MSYMLDGLTFFSDFQSSKIMQKHCSELYGCKEMNNTIPPTKQDQDFKMAATLY 60
QY 61 EMLGNITAFIFKQSSSSIGNNETIVENILANVYH;SHEKLVKPEEPVPEPTWQAMSSQ 120
EL 61 EMLGNITAFIFKQSSSSIGNNETIVENILANVYH;NAKRV;EEKLFKPTFCALMSSQ 120
QY 121 HIKRYGRILHAYLKAKESHCAMTIYVEVLLPNFYRINRLTGYRN 166
DB 121 HIKRYGRILHAYLKAKESHCAMTIYVEVLLPNFYRINRLTGYRN 166
RESULT 7
AAV70909
ID AAV70909 standard; Protein: 166 AA.
XX
XX AAV70909;
XX
XX 31-JUL-2000 (first entry)
XX
XX Human interferon-beta alanine substituted mutant H121A.
XX
XX Human interferon beta; IFN-beta; immunoglobulin; fusion protein; mutant;
XX angiogenesis; antisclectic; anti-inflammatory; immunosuppressive;
XX cytostatic; viricide; hepatoprotect; antitumor; treatment; fibrosis;
XX multiple sclerosis; inflammatory disease; autoimmune disease; cancer;
XX hepatitis; viral infection; neovascularisation; IFN-beta-1a.
XX
XX Homo sapiens.
OS Synthetic.
XX
XX Key location/qualifiers
XX
XX Note: "Wild type His is substituted by Ala"
XX

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XX
XX W020023472-A2.
XX
XX 27-APR-2000
XX
XX 15-OCT-1999; 99W0-0524200.
XX
XX 16-OCT-1998; 980S-0104491.
XX 16-FEB-1999; 990S-0120237.
XX
XX (BIOJ) BIOGEN INC.
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XX WPI: 2000-339654/29.
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CC The mutant was analysed in antiviral assays to assess the effects
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CC dimer. The His mutants retained wild type activity suggesting that
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CC Note: the present sequence is not shown in the specification but is
CC derived from wild type human IFN-beta sequence found in page 36
CC (AAV70871).
XX
XX Sequence 166 AA:
SU
Query Match 96.0%; Score 832; DB 21; Length 166;
Best Local Similarity 96.4%; Pred. No. 2e-69;
Matches 160; Conservative 1; Mismatches 5; Indels 0; Gaps 0;
QY 1 MAAVALGACASSHFGQKIMQKHCSELYGCKEMNNTIPPTKQDQDFKMAATLY 60
DB 1 MSYMLDGLTFFSDFQSSKIMQKHCSELYGCKEMNNTIPPTKQDQDFKMAATLY 60
QY 61 EMLGNITAFIFKQSSSSIGNNETIVENILANVYH;SHEKLVKPEEPVPEPTWQAMSSQ 120
DB 61 EMLGNITAFIFKQSSSSIGNNETIVENILANVYH;SHEKLVKPEEPVPEPTWQAMSSQ 120
QY 121 HIKRYGRILHAYLKAKESHCAMTIYVEVLLPNFYRINRLTGYRN 166
DB 121 HIKRYGRILHAYLKAKESHCAMTIYVEVLLPNFYRINRLTGYRN 166
RESULT 8
AAV84962
ID AAV84962 standard; Protein: 166 AA.
XX
XX AAV84962;
XX
XX 21-APR-2000 (first entry)
XX
XX Alanine mutant of human interferon beta 1a protein.
XX
XX Interferon beta 1a; IFN-beta-1a; polypeptide; polypeptide; glycoprotein; tumour;
XX cancer; autoimmune condition; fibrosis; lupus; multiple sclerosis;
XX viral disease; autoimmune disease.
XX
XX Homo sapiens.
OS Synthetic.
XX
XX
XX

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[illegible]

AC	AAV708847
XX	
XX	31-JUL-2000 (first entry)
XX	
XX	Human interferon beta alanine substituted mutant DEL
XX	
XX	Human: interferon-beta; JFN beta; immunoglobulin fusion protein; mutant
KM	antibodies; anti-sclerotic; anti-inflammatory; immunosuppressive
KM	antibodies; anti-sclerotic; hepatitis and inflammatory fibrosis
KW	cytotoxic; virulent; hepatitis and inflammatory fibrosis; fibrosis
KW	multiple sclerosis; inflammatory disease; autoimmune disease; cancer
XX	hepatitis; viral infection; neovascularisation; JFN beta; DE loop
XX	
OS	Homo sapiens.
XX	Synthetic.
XX	
XX	Key
FT	Location/Qualifiers
FT	1..25
FT	/label= Helix_A
FT	26..53
FT	/label= AH_loop
FT	54..73
FT	/label= Helix_B
FT	74..100
FT	/label= Helix_C
FT	101..119
FT	/label= CT_loop
FT	120..134
FT	/label= Helix_D
FT	135..140
FT	/label= DE_loop
FT	136
FT	note= "wild type lys is substituted by Ala"
FT	137
FT	/note= "wild type glu is substituted by Ala"
FT	141..146
FT	/label= Helix_E
XX	
XX	WE2200C23472_A2.
XX	
XX	27-APR-2000.
XX	
XX	15-OCT-1999; 99W0-0524200.
XX	
XX	16-OCT-1998; 980S-0104491.
PR	16-FEB-1999; 990S-0120247.
XX	
XX	(HIOJ) HIOGEN INC.
XX	
XX	Wildly A. Finkbein, Eric Kelmater M. Hochman Fy
XX	
XX	WPI: 2000 339654/29.
XX	
XX	Fusion proteins comprising interferon-beta-1a useful for inhibited
XX	angiogenesis -
XX	
XX	Example 1: Page -7 82pp; English.
XX	
XX	The patent discloses fusion proteins comprising glycosylated
XX	antibodies, beta-12N beta, cytokine, alpha-beta, linker domains and
XX	non-FN-beta proteins, especially an immunoglobulin (Ig) protein. The
XX	fusion protein is useful for inhibiting angiogenesis in a patient.
XX	It may also be used to treat multiple sclerosis, fibrosis, inflammatory
XX	and autoimmune diseases, cancer, hepatitis and viral infection
XX	characterised by neovascularisation. The present sequence is
XX	a human interferon beta alanine substituted mutant DEL generated
XX	by mutating residues in the DE loop of wild type sequence.
XX	The Ala/Ser substituted mutants of JFN-beta having substitutions in
XX	beliefs A, B, C, D or E, or loops AB, CD or DE were assessed for
XX	proper binding and functional activities e.g. antiviral and
XX	antiproliferative activities. The DEL mutant displays both antiviral and
XX	antiproliferative activities but its antiproliferative activity is lower
XX	than antiviral activity and both antiviral and antiproliferative
XX	activities are lower relative to receptor binding, compared to the

CC wild-type reference. The mutant is used to produce IFN-beta fusion
 CC proteins. Note: The present sequence is not shown in the specification
 CC but is derived from wild-type human IFN-beta sequence found in page 36
 CC (AAV70871).

XX Sequence 166 AA:

Query Match 95.7% Score 830: P8 21: Length 166:

Host Local Similarity 95.8%: Pred. No. 4, 1e-69:

Matches 159: Conservative 1: Mismatches 6: Indels 0: Gaps 0:

CC 1 MAAVALGALQASSNFCQCKLWOLNGLLEYCLKDPNFDIPETIKQLAQPKEDALITY 60

CC 1 MSNLLGFLQPSNRCYQKTIWLNRIIFYCKPMNPDPITPEIKQLQPKEDALITY 60

CC 61 EMLQNIFAIFKQSSSTGMMETIVENLAVNYHCINHLKTVLEFLKECEFPQALMSL 120

CC 61 EMLQNIFAIFKQSSSTGMMETIVENLAVNYHCINHLKTVLEFLKECEFPQALMSL 120

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC 121 HFFVYSEILHTYKAKESHCATVPEVLPPEYIPNPITGYLPN 166

CC to an interferon beta polypeptide, the amino acid sequence of which

CC differs from wild-type human interferon beta in at least one introduced

CC and at least one removed amino acid residue comprising an attachment

CC group for the first non-polypeptide group; the invention also concerns

CC reducing the immunogenicity and/or increasing functionality in vivo

CC half-life and/or serum half-life of an interferon beta polypeptide

CC comprising introducing an amino acid residue constituting an attachment

CC group for a first non-polypeptide group into a position exposed at the

CC surface of the protein that does not contain such a group and removing

CC an amino acid residue constituting an attachment group for a first

CC non-polypeptide group and subjecting the modified peptide to a conjugation

CC with the non-polypeptide group. The conjugate and a cell culture

CC expressing the mutated polypeptides are useful in the treatment of

CC disease, especially multiple sclerosis, and for treating mammals having

CC circulating antibodies against interferon beta in or to. DNA encoding the

CC mutated proteins may be used for gene therapy. The DNA and proteins can

CC also be used to treat viral infections (e.g. viral hepatitis), cancer

CC (e.g. breast cancer), inflammation, Crohn's disease, acute myeloid

CC leukemia, Hodgkin's disease and ulcerative colitis and for

CC immunomodulation.

CC Note: The present sequence is not shown in the specification but is

CC derived from the human interferon beta sequence given in AAV00069.

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1b	1	MSYNLCTFLOJSSNFCVOKITMOINCHLEYTAKOMHMDPEELKOLQOYQKHAALTY	60
27	61	FMLOZNTFAFQJSSSTMMNRETVENILJANYHDLINLKVLEPEKLEPEPEFQALMSSL	120
14b	61	FMLOZNTFAFQJSSSTMMNRETVENILJANYHDLINLKVLEPEKLEPEPEFQALMSSL	120
27	121	MLKRYZTFLJVEKALYSHFAMFVLEVEILHIDYRINLQYGLRN	166
14b	121	MLKRYZTFLJVEKALYSHFAMFVLEVEILHIDYRINLQYGLRN	166

$$\begin{aligned} \text{Zinc chloride} &= 200 \text{ gms.} \\ \text{Lead chloride} &= 400 \text{ " } \\ \text{Lead} &= 400 \text{ " } \end{aligned}$$

EL [7] RN

[illegible]

Query Match 46 46 N-LINKED (GLCNAC...) (POTENTIAL)
 Best Local Similarity 60.88; Pred. No. 47e-3b;
 Matches 101; Conservative 27; Mismatches 37; Indels 1; Gaps 1;

1 MSYNIQETLPSSNFWYLWQINPTEVGLKPMNPTPEPTKQIQOKEKALITY 60
 22 VAYVLIHQETESSLPFVNLNPKSKYLDPMNFWDEELKSKQSPQKPAHIVN 81
 61 PNIQNIAPFPGQSSSTGNETIVNLIANYHQINHKVLEKLEKDEPTGALMSTL 120
 82 EEPQKIFNIESRSTSTGNETIVNLIANYHQINHKVLEKLEKDEPTGALMSTL 140
 121 HEKVCDEHETKAKFYSHAMTIVKVELEPNTYINSTGYLYN 166
 141 NIKAYLEVEELKAFYSWAMTIVKVELEPNTYINSTGYLYN 186

RESULT 4
 INB_HOVIN STANDARD; PRI: 186 AA.

AC P01576;
 DT 21-JUL-1986 (rel. 01, created)
 DT 21-JUL-1986 (rel. 01, last sequence update)
 DT 15-JUN-2002 (rel. 41, last annotation update)
 DE Interferon beta-2 precursor.
 GN IFNB2.
 OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Bovidae; Bovinae; Bos.
 OX NCBI_TaxID:9913;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Leung D.W., Capon D.J., Goeddel D.V.;
 RT The structure and bacterial expression of three distinct bovine
 RT interferon-beta genes.";
 RL Biotechnology 2:458-464(1984).
 CC 1- FUNCTION: HAS ANTIVIRAL, ANTI-BACTERIAL AND ANTICANCER ACTIVITIES.
 CC 1- SUBUNIT: MONOMER.
 CC 1- SUBCELLULAR LOCATION: Secreted.
 CC 1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
 CC FAMILY.
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EMBL: M15478; AAA30580.1;
 DR PIR: A01840; IY082.
 DR HSSD: P01574; IAU1.
 DR InterPro: IPR000471; Interferon_abd.
 DR Pfam: PF00143; Interferon_1.
 DR ProSITE: PS00266; INTERFERONAB.
 DR PRODOM: PD000550; Interferon_abd; 1.
 DR SMART: SM00076; Ipad; 1.
 DR PROSITE: PS00252; INTERFERON_A_B_D; 1.
 DR PROSITE: PS00252; INTERFERON_A_B_D; 1.
 DR GlycoSite: Glycosylation; Antigenic; Multigene family; Signal
 FM SIGNAL 1 21
 FT CHAIN 22 186 INTERFERON BETA-2.
 FT DISULFID 52 161 PROBABLE.
 FT CARBOHYD 131 131 N-LINKED (GLCNAC...) (POTENTIAL).
 FT CARBOHYD 173 173 N-LINKED (GLCNAC...) (POTENTIAL).
 SQ SEQUENCE 186 AA, 22319 MW, 29525063250480 CPO64;

Query Match 55.88; Score 482.5; DB 1; Length 186;
 Best Local Similarity 57.48; Pred. No. 1.2e-43;
 Matches 94; Conservative 30; Mismatches 39; Indels 1; Gaps 1;

2 SYNLGPGSSNFWYLWQINPTEVGLKPMNPTPEPTKQIQOKEKALITY 60
 22 VAYVLIHQETESSLPFVNLNPKSKYLDPMNFWDEELKSKQSPQKPAHIVN 81
 61 PNIQNIAPFPGQSSSTGNETIVNLIANYHQINHKVLEKLEKDEPTGALMSTL 120
 82 EEPQKIFNIESRSTSTGNETIVNLIANYHQINHKVLEKLEKDEPTGALMSTL 140
 121 HEKVCDEHETKAKFYSHAMTIVKVELEPNTYINSTGYLYN 166
 141 NIKAYLEVEELKAFYSWAMTIVKVELEPNTYINSTGYLYN 186

RESULT 4

INB_HORSE STANDARD; PRI: 186 AA.

AC P05012;
 DT 13-AUG-1987 (rel. 05, created)
 DT 13-AUG-1987 (rel. 05, last sequence update)
 DT 15-JUN-2002 (rel. 41, last annotation update)
 DE Interferon beta precursor (IFN-beta).
 GN IFNB.
 OS Equus caballus (Horse).
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
 OX NCBI_TaxID 9796;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA MONTAGNE-87054170; PubMed 4022999;
 RA Himmeler A., Hauptmann R., Abolt G.K., Sautely P.;
 RT "Molecular cloning and expression in Escherichia coli of equine type
 RT 1 interferons.";
 RL DNA 5:345-356(1986).
 CC 1- FUNCTION: HAS ANTIVIRAL, ANTI-BACTERIAL AND ANTICANCER ACTIVITIES.
 CC 1- SUBUNIT: MONOMER.
 CC 1- SUBCELLULAR LOCATION: Secreted.
 CC 1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
 CC FAMILY.
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EMBL: M1546; AAA0964.1;
 DR PIR: G24912; IY081.
 DR HSSD: P01574; IAU1.
 DR InterPro: IPR000471; Interferon_abd
 DR Pfam: PF00143; Interferon_1.
 DR PRODOM: PD000550; Interferon_abd; 1.
 DR SMART: SM00076; Ipad; 1.
 DR PROSITE: PS00252; INTERFERON_A_B_D; 1.
 DR PROSITE: PS00252; INTERFERON_A_B_D; 1.
 DR GlycoSite: Antigenic; Glycoprotein; Signal.
 FM SIGNAL 1 21
 FT CHAIN 22 186 INTERFERON BETA.
 FT DISULFID 52 161 BY SIMILARITY.
 FT CARBOHYD 131 131 N-LINKED (GLCNAC...) (POTENTIAL).
 FT CARBOHYD 173 173 N-LINKED (GLCNAC...) (POTENTIAL).
 SQ SEQUENCE 186 AA, 22392 MW, 29525063250480 CPO64;

Query Match 54.68; Score 476.5; DB 1; Length 186;
 Best Local Similarity 58.44; Pred. No. 3.9e-43;
 Matches 97; Conservative 27; Mismatches 41; Indels 1; Gaps 1;

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[illegible]


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CC      FAMILY.
CC
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CC      between the Swiss Institute of Bioinformatics and the EMBL Outstation
CC      the European Bioinformatics Institute. There are no restrictions on its
CC      use by non-profit institutions as long as its content is in no way
CC      modified and this statement is not removed. Usage by and for commercial
CC      entities requires a license agreement. (See http://www.isb-sib.ch/announce/
CC      or send an email to license@isb-sib.ch.)
CC
CC      EMBL: M1543; AA030952.1; -
CC      DR PIR: D24912; ITH0A4.
CC      DR HSSP: P01563; 2HIE.
CC      DR InterPro: IPR000471; Interferon_abc4
CC      DR Pfam: PF00143; Interferon_1
CC      DR PRINTS: PR00266; INTERFERONAB.
CC      DR PRODOM: PD000550; Interferon_abc4; 1
CC      DR SMART: SM00076; Irbad; 1
CC      DR PROSITE: PS00252; INTERFERON_A,B,D; 1
CC      KW Cytokine; Antiviral; Multigene family; Signal.
CC      FT SIGNAL.
CC      FT CHAIN.
CC      FT DISULFID 24 184 INTERFERON ALPHA-4.
CC      FT DISULFID 24 122 BY SIMILARITY.
CC      FT DISULFID 52 162 BY SIMILARITY.
CC      SQ SEQUENCE 184 AA; 20860 MW; F0087F4C11068BC CRC64;

Query Match: 30.08; Score 262; DB 1; Length 184;
Best Local Similarity 36.78; Pred. No. 36-15;
Matches 55; Conservative 29; Mismatches 52; Indels 14; Gaps 1,

QY 5 LIGTPSSNPQTKILWNGSELEYLNLQMNFLPEELKOLQUPQKELALLIYEMQ 64
DB 40 LIGQMRPISPS-----CLKQNDPQFQVEVDQNGQKRPQASVAVHTIQ 85

QY 65 NPAIFPDSSSTQWNETIVENLANYHQINLKIYIEKLEKEDTFRGLMSSSLHKR 124
DB 86 QIFHLSTQSSAAMDSESLNLTIGLVQVITFLPACISQVGEETPLMNEDSLAVR 145

QY 125 YVGRILHYLKAKEYSHCAWTVVPEILRN 154
DB 146 YVGRITLYLQEKYSPCAWEIVPAELIMKSP 175

RESULT 15
INAA2_HORSE STANDARD: PRT; 184 AA.
AC P05004;
DT 13-AUG-1987 (Rel. 05, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Interferon alpha-2 precursor.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
OX NCBI_TaxId=9796;
RN 111
RP SEQUENCE FROM N.A.
RA MEDLINE: 87053170; PubMed: 3022999;
RA Himmler A., Hauptmann R., Adolf G.R., Swelly P.;
RT Molecular cloning and expression in Escherichia coli of equine type
RT I interferon.
RL DNA 51445-356(1986).
CC -!- FUNCTION: PRODUCED BY MACROPHAGES, IFN-ALPHA HAVE ANTIVIRAL
CC ACTIVITIES. INTERFERON STIMULATES THE PRODUCTION OF TWO ENZYMES:
CC A PROTEIN KINASE AND AN OLIGOADENYLATE SYNTHETASE.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
CC FAMILY.
CC
CC      This SWISS-PROT entry is copyright. It is produced through a collaboration
CC      between the Swiss Institute of Bioinformatics and the EMBL Outstation
CC      the European Bioinformatics Institute. There are no restrictions on its
CC      use by non-profit institutions as long as its content is in no way

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CC      modified and this statement is not removed. Usage by and for commercial
CC      entities requires a license agreement. (See http://www.isb-sib.ch/announce/
CC      or send an email to license@isb-sib.ch.)
CC
CC      EMBL: M1543; AA030950.1; -
CC      DR PIR: A15943; CA01258.1; -
CC      DR PIR: D24912; ITH0A2.
CC      DR HSSP: P01563; 2HIE.
CC      DR InterPro: IPR000471; Interferon_abc4.
CC      DR Pfam: PF00143; Interferon_1
CC      DR PRINTS: PR00266; INTERFERONAB.
CC      DR PRODOM: PD000550; Interferon_abc4; 1
CC      DR SMART: SM00076; Irbad; 1
CC      DR PROSITE: PS00252; INTERFERON_A,B,D; 1
CC      KW Cytokine; Antiviral; Multigene family; Signal.
CC      FT SIGNAL.
CC      FT CHAIN.
CC      FT DISULFID 24 184 INTERFERON ALPHA-2.
CC      FT DISULFID 24 122 BY SIMILARITY.
CC      FT DISULFID 52 162 BY SIMILARITY.
CC      SQ SEQUENCE 184 AA; 20877 MW; F019B27D811068BC CRC64;

Query Match: 29.68; Score 258; DB 1; Length 184;
Best Local Similarity 36.78; Pred. No. 6, 36-15;
Matches 55; Conservative 28; Mismatches 53; Indels 14; Gaps 1;

QY 5 LIGTPSSNPQTKILWNGSELEYLNLQMNFLPEELKOLQUPQKELALLIYEMQ 64
DB 40 LIGQMRPISPS-----CLKQNDPQFQVEVDQNGQKRPQASVAVHTIQ 85

QY 65 NPAIFPDSSSTQWNETIVENLANYHQINLKIYIEKLEKEDTFRGLMSSSLHKR 124
DB 86 QIFHLSTQSSAAMDSESLNLTIGLVQVITFLPACISQVGEETPLMNEDSLAVR 145

QY 125 YVGRILHYLKAKEYSHCAWTVVPEILRN 154
DB 146 YVGRITLYLQEKYSPCAWEIVPAELIMKSP 175

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Search completed: May 6, 2003, 09:50:46
Job time: 9 secs

[illegible]

	Query Match	55.4%	Score 482.5	DB 1	Length 186
	Prost. haal	Similarity 57.38	Prod. No.	842-49	
	Matches 94	Conservative 40	Mismatch 59	Indels 1	Gaps
QY	2	SYNLLHLLQSSNMCYQTLMLNLLYVYKLENNTHLEELKQVQVGRHAAITYE	61		
DB	2	SYSLHLLQSSSLATLLELLQVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVY	62		
QY	62	MLGNFATFQSSSSQVQVETVEVLLANVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVY	122		
DB	83	MOGTFNLLPQSSSTGWSGSETHLEELLEVEYQNNHEPQKQVLMKQNSMDQTVYVH	14		
QY	122	LKRYVYCRILYVYKAKYVYSGVMTLVRYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVY	165		
DB	142	LKRYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVYVY	185		

RESULT

interferon beta-1 precursor horse
N:Altorname names: EqJPN beta-1; *type 1 interferon
C:Species: Equus caballus (domestic horse)
Accession: 08 Feb 1987

R.H. Müller, A.; Hauptmann, R.; Adolt, C.R.; Swetly, P.
DNA 5, 345-356, 1986

Attille, Molecular cloning and expression in Escherichia coli of equine type I inter-

A: Reference number: A90956; MUID: 87053170; PMID: 302599

A;Accession: G24912
A;Molecule type: mRNA
A;Residues: 1-186 <HM>

A: Cross-references; GB:M14546; NID:
C: Superfamily; Interferon alpha
C: keywords: artificial, glycoprotein

F11-21/Domains: signal sequence #status predicted ,S16
F122-186/Product: Interferon beta 1 #status predicted ,MAT
F1101,136/Binding Site: carbohydrate (Asn) (covalent) #status predicted

Query Match: 54.68; Score: 476.5; DB: 1; Length: 166;

Best local similarity: 58.4%; Pred. No. 2, 46-47
 Mismatches: 37; Substitutions: 27; Indels: 11; gaps: 1

1 MEVRLAST, G. S. THE EFFECT OF NUTRITION ON BODY WEIGHT, FEED EFFICIENCY, AND FERTILITY OF
27 FEMALE PIGS. *Journal of Animal Science* 1964, 23, 102-107.

22 VAN DER LINDEN, J. R. N. AND VAN DER LINDEN, J. M. H. THE EFFECT OF MATERNAL NUTRITION ON
28 THE GROWTH OF PIGS. *Journal of Animal Science* 1964, 23, 108-112.

6) EMULSIFIKATIONSDURCH VERGÄHRTUNG: EMULSIONEN MIT EINEM PROZENTGEHALT AN EMULSIONSSTOFFEN VON 10 BIS 20

82 EIGHTH INTERNATIONAL SYMPOSIUM ON THE PHYSICS OF HIGH-TEMPERATURE PLASMAS - II

Db 141 RLKYYGRISQYLKAKKYSILCAWTVVCAEMLRNLAFINLITVYCN 189

RESULT 4

Interleuton beta 3 precursor bovine
 (Species: Bos primigenius taurus (cattle))

C. Date: 15-Nov-1984 #sequence_revision 15 Nov 1984 #last_authdate 07 Feb 1999
C. Accession: A01841
C. Legend: B.W.: Caron, B.J.: Goodell, B.V.

bio/technology 2, 458-464, 1984

A;Molecule type: DNA

A;Residuos: 1-186 <1,fill>

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Query Match	30/09	Score	262	EP	1	Length	184
Host Local Similarity	36/79	Prod. No.	1.38-14				
Matches	55	Conservative	29	Mismatches	52	Indels	14
						Gaps	1

[illegible]

RESULT 12

LIVELI

Neurological symptoms: EPILEPSY, tremor

Species: *Equus caballus* (domestic horse)

Office of the Attorney General (Consumer Affairs)
 1000 Bankers Building
 18-700, 1987 #Lex. 1999
 18-700, 1987 #Lex. 1999


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1b 22 MSYNLCHFGPSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 81
27 61 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 120
3b 82 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 141
27 121 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 166
3b 142 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 187

RESULT 1
Query Match 98.5% Score 859; DB 6; Length 187;
Best local similarity 98.8%; Pred. No. 2,90-85;
Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

27 1 MSYNLCHFGPSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 90
3b 22 MSYNLCHFGPSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 81
27 61 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 120
3b 82 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 141
27 121 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 166
3b 142 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 187

RESULT 10
US-09-215-212-14
Query Match 98.0% Score 859; DB 2; Length 166;
Best local similarity 98.2%; Pred. No. 4,10-85;
Matches 164; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

27 61 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 120
3b 82 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 141
27 121 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 166
3b 142 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 187

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OTHER INFORMATION: Residues 1-29, signal sequence; 30-249, human IFNAR2; 240-249,
OTHER INFORMATION: 2X Gly403 linker; 250-415, human IFNAR2
US-09-215-212-14
Query Match 98.5% Score 859; DB 4; Length 415;
Best local similarity 98.8%; Pred. No. 8,60-85;
Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

27 1 MSYNLCHFGPSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 90
3b 22 MSYNLCHFGPSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 81
27 61 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 120
3b 82 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 141
27 121 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 166
3b 142 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 187

RESULT 11
US-08-477-310A-1
Sequence 1, Application US/08477310A
Patent No. 5814485
GENERAL INFORMATION:
APPLICANT: Doris, Glenn
APPLICANT: McAlary, Patrick J.
TITLE OF INVENTION: Bacterial Production of Hydrophobic
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
ADDRESS: Chiron Corporation
STREET: 4560 Horton Street
CITY: Emeryville
STATE: California
COUNTRY: U.S.A.
ZIP: 94608
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent in Release #1.0, Version #1.40
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/477-310A
FILING DATE: 06-JUN-1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Chung, Ling-Fong
REGISTRATION NUMBER: 36,482
REFERENCE/DOCKET NUMBER: 960,001
TELECOMMUNICATION INFORMATION:
TELEPHONE: (510) 923-2704
TELEFAX: (510) 655-3542
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acid
STRANDINESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-477-310A-1

Query Match 98.4% Score 857; DB 2; Length 166;
Best local similarity 98.2%; Pred. No. 4,10-85;
Matches 164; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

27 61 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 120
3b 82 EMLGNFAIFPGQSSNPGVQKILWQINSGEYVLIKEMNLTPEELKGLDQGEVALITY 141
27 121 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 166
3b 142 HLEKYVGRLLHYLAKESYHAWITVVEVLLKRFYINRLGYLRN 187

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CORRESPONDENT ADDRESS:
ADDRESS: James E. Haley, Jr.
STREET: Fish & Noyes, 1251 Avenue of the
STREET: Americas
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10020-1104
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
TO/REFERENCE: IBM PC compatible
OPERATING SYSTEM: pc bios 62ms dos
SOFTWARE: Patent Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US96/04206
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Haley Jr., James E.
REGISTRATION NUMBER: 27,794
REFERENCE/DOCKET NUMBER: 8179
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 596-9000
TELEFAX: (212) 596-9090
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acid
STANDARD: standard
TOPOLOGY: linear
MOLECULE TYPE: protein
HYDROPHILIC: No
ANTISENSE: No
PCT US96-04206-1

Query Match:          97.9%; Score 854; DB 5; Length 166;
Host local similarity 98.2%; Prod. No. 8-6e-85;
Matches 163; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

CY 1 MSYNLAFPGDSSNPGVQKIMQINSHPCYKIPNNPPIPEIKIQDQFQREDAALTY 60
DB 1 MSYNLAFPGDSSNPGVQKIMQINSHPCYKIPNNPPIPEIKIQDQFQREDAALTY 60
16 1 MSYNLAFPGDSSNPGVQKIMQINSHPCYKIPNNPPIPEIKIQDQFQREDAALTY 60

CY 61 EMLGNIFAFPGDSSSTWNNEIVFNILANYHQLNHKTVLPEERLEKPHICAMSSL 120
DB 61 EMLGNIFAFPGDSSSTWNNEIVFNILANYHQLNHKTVLPEERLEKPHICAMSSL 120
16 61 EMLGNIFAFPGDSSSTWNNEIVFNILANYHQLNHKTVLPEERLEKPHICAMSSL 120

CY 121 HIKRYGRILHYLAKESYSHCAWTVVVEILRNFRINRLTGVLRN 166
DB 121 HIKRYGRILHYLAKESYSHCAWTVVVEILRNFRINRLTGVLRN 166
16 121 HIKRYGRILHYLAKESYSHCAWTVVVEILRNFRINRLTGVLRN 166

PRT 15
US-09-832-768-3
Sequence 3, Application US/09012768
Patent No. 6127332
GENERAL INFORMATION:
APPLICANT: Gao12, Susan E.
APPLICANT: Gao, Richard L.
APPLICANT: Poplisky, Blake R.
APPLICANT: Chow, Pringchao E.
TITLE OF INVENTION: No. 6127332-1 Methods of TFN-RNA
NUMBER OF SEQUENCES: 3
CORRESPONDENT ADDRESS:
ADDRESS: James E. Haley, Jr.
STREET: Fish & Noyes, 1251 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10020-1104
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPILED: IBM PC compatible

```

```

OPERATING SYSTEM: PC-BIOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US-09-832-768-3
FILING DATE:
CLASSIFICATION:
PRIORITY APPLICATION DATA:
APPLICATION NUMBER: 08/474,774
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Haley Jr., James E.
REGISTRATION NUMBER: 27,794
REFERENCE/DOCKET NUMBER: 8179
TELECOMMUNICATION INFORMATION:
TELEPHONE: (212) 596-9000
TELEFAX: (212) 596-9090
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 187 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-912-768-3

Query Match:          97.9%; Score 854; DB 3; Length 187;
Host local similarity 98.2%; Prod. No. 1e-84;
Matches 163; Conservative 0; Mismatches 3; Indels 0; Gaps 0;

CY 1 MSYNLAFPGDSSNPGVQKIMQINSHPCYKIPNNPPIPEIKIQDQFQREDAALTY 60
DB 22 MSYNLAFPGDSSNPGVQKIMQINSHPCYKIPNNPPIPEIKIQDQFQREDAALTY 61
61 EMLGNIFAFPGDSSSTWNNEIVFNILANYHQLNHKTVLPEERLEKPHICAMSSL 120
DB 82 EMLGNIFAFPGDSSSTWNNEIVFNILANYHQLNHKTVLPEERLEKPHICAMSSL 141
121 HIKRYGRILHYLAKESYSHCAWTVVVEILRNFRINRLTGVLRN 166
DB 142 HIKRYGRILHYLAKESYSHCAWTVVVEILRNFRINRLTGVLRN 187
16 142 HIKRYGRILHYLAKESYSHCAWTVVVEILRNFRINRLTGVLRN 187

Search completed: May 6, 2003, 09:56:10
Job time : 13 secs

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Matches 141: Conservative 1: Mismatches 4: Indels 0: Gaps 0:

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QY 1 MAYAALGALQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 1 MSYNLGLTQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60

QY 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120

QY 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166

```

RESULT 2
US-09-1447.7

```

1 Sequence 7: Application pr/7090814497
2 GENERAL INFORMATION:
3 APPLICANT: Cox III, George N
4 APPLICANT: Boulder Biotechnology, Inc.
5 TITLE OF INVENTION: polypeptides of Growth Hormone and Related Proteins
6 FILE REFERENCE: BR0011
7 CURRENT APPLICATION NUMBER: PT/00809714497
8 FILING DATE: 1998-07-14
9 EARLIER APPLICATION NUMBER: 60/052,516
10 CURRENT FILING DATE: 1997-07-14
11 NUMBER OF SEQ ID NOS: 41
12 SOFTWARE: FASTSP for Windows Version 4.0
13 SEQ ID NO: 5
14 LENGTH: 166
15 TYPE: PRT
16 ORGANISM: Homo sapiens
17 US09-1447.7

```

Query Match 95.6% Score 829: DB 1: Length 166:
Best Local Similarity 95.6% Prod. No. 4.4e-77:
Matches 159: Conservative 1: Mismatches 6: Indels 0: Gaps 0:

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QY 1 MAYAALGALQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 1 MSYNLGLTQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60

QY 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120

QY 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166

```

RESULT 4

```

1 Sequence 7: Application US/09157068
2 GENERAL INFORMATION:
3 APPLICANT: Battell C. Conklin
4 APPLICANT: Francis J. Grant
5 APPLICANT: Wayne Kinsvogel
6 APPLICANT: Mark W. Rixon
7 TITLE OF INVENTION: Interleukin opsinin
8 FILE REFERENCE: 98-46
9 CURRENT APPLICATION NUMBER: 05/097157068
10 CURRENT FILING DATE: 1998-09-18
11 NUMBER OF SEQ ID NOS: 17
12 SOFTWARE: FASTSP for Windows Version 4.0
13 SEQ ID NO: 7
14 LENGTH: 166
15 TYPE: PRT
16 ORGANISM: Homo sapiens
17 US-09-157068.7

```

Query Match 95.6% Score 829: DB 15: Length 166:

Best Local Similarity 95.6% Prod. No. 4.4e-77:
Matches 159: Conservative 1: Mismatches 6: Indels 0: Gaps 0:

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QY 1 MAYAALGALQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 1 MSYNLGLTQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60

QY 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120

QY 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166

```

RESULT 4

```

US-09-245-294-7
1 Sequence 7: Application US/09245294
2 GENERAL INFORMATION:
3 APPLICANT: Conklin, Darrell C.
4 APPLICANT: Grant, Francis J.
5 APPLICANT: Rixon, Mark W.
6 APPLICANT: Kinsvogel, Wayne
7 TITLE OF INVENTION: INTERLEUKIN OPSININ
8 FILE REFERENCE: 98-4682
9 CURRENT APPLICATION NUMBER: 05/097245294
10 CURRENT FILING DATE: 1999-02-05
11 NUMBER OF SEQ ID NOS: 25
12 SOFTWARE: FASTSP for Windows Version 4.0
13 SEQ ID NO: 7
14 LENGTH: 166
15 TYPE: PRT
16 ORGANISM: Homo sapiens
17 US-09-245-294-7

```

Query Match 95.6% Score 829: DB 16: Length 166:
Best Local Similarity 95.6% Prod. No. 3.4e-77:
Matches 159: Conservative 1: Mismatches 6: Indels 0: Gaps 0:

```

QY 1 MAYAALGALQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 1 MSYNLGLTQSSNPQVWGLWQINRLEPTLRKMNPTLPEELKQDQPKREVALITY 60

QY 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 61 EMQNFALFPRQSSSTQNNETIVENLANYVHQINRKYVLEKREKREPTKALMSSL 120

QY 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166
   1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Db 121 HLKRYGRLHLYKAEYSHWAMTVKVELLNPRYKRNGLGYLRN 166

```

RESULT 5

```

US-09-350-232-7
1 Sequence 7: Application US/09350232
2 GENERAL INFORMATION:
3 APPLICANT: Conklin, Darrell C.
4 APPLICANT: Grant, Francis J.
5 APPLICANT: Rixon, Mark W.
6 APPLICANT: Kinsvogel, Wayne
7 TITLE OF INVENTION: Interleukin opsinin
8 FILE REFERENCE: 98-46
9 CURRENT APPLICATION NUMBER: 05/097350232
10 CURRENT FILING DATE: 1999-07-08
11 NUMBER OF SEQ ID NOS: 25
12 SOFTWARE: FASTSP for Windows Version 4.0
13 SEQ ID NO: 7
14 LENGTH: 166
15 TYPE: PRT
16 ORGANISM: Homo sapiens
17 US-09-350-232-7

```

Query Match 95.6% Score 829 DB 17 Length 166
 Best Local Similarity 95.8% Pctd. No. 3,4e-77
 Matches 159 Conservative 1 Mismatches 6 Indels 0 Gaps 0

1 MAYAALGALQASSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 1 MSYNLIGELQSSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166

RESULT 6

US-09-403-5428-1
 Sequence 1: Application US/094035428

GENERAL INFORMATION:
 APPLICANT: Schneider-Fresenius, Christian
 APPLICANT: Otto, Bernd
 APPLICANT: Maschutza, Gero
 APPLICANT: Frumhofer-Gossels, Hartmut
 TITLE OF INVENTION: Human recombinant beta-interferon with improved
 TITLE OF INVENTION: Solubility
 FILE REFERENCE: 127-65050
 CURRENT FILING DATE: 2000-02-22
 PRIOR FILING DATE: 1998-04-16
 PRIOR APPLICATION NUMBER: DE 197 7864.2
 PRIOR FILING DATE: 1997-04-24
 NUMBER OF SEQ ID NOS: 22
 SOFTWARE: Patent In Ver. 2.1
 SEQ ID NO 1
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-403-5428-1

Query Match 95.6% Score 829 DB 18 Length 166
 Best Local Similarity 95.8% Pctd. No. 3,4e-77
 Matches 159 Conservative 1 Mismatches 6 Indels 0 Gaps 0

1 MAYAALGALQASSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 1 MSYNLIGELQSSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166

RESULT 7

US-09-462-941-5
 Sequence 5: Application US/09462941

GENERAL INFORMATION:
 APPLICANT: Toy, Hideo
 APPLICANT: Toy, Hideo
 TITLE OF INVENTION: Polypeptides of growth hormone and related proteins
 FILE REFERENCE: 415211-PHS
 CURRENT FILING DATE: 2000-01-14
 PRIOR APPLICATION NUMBER: 60/052,516
 PRIOR FILING DATE: 1997-07-14
 NUMBER OF SEQ ID NOS: 41
 SOFTWARE: Patent In Ver. 2.0

SEQ ID NO 5
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-462-941-5

Query Match 95.6% Score 829 DB 18 Length 166
 Best Local Similarity 95.8% Pctd. No. 3,4e-77
 Matches 159 Conservative 1 Mismatches 6 Indels 0 Gaps 0

1 MAYAALGALQASSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 1 MSYNLIGELQSSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166

RESULT 8

US-09-569-722-1
 Sequence 1: Application US/09569722

GENERAL INFORMATION:
 APPLICANT: BionZion, David
 TITLE OF INVENTION: HLA-A, B, C, DR, DQ, DP, and DM antigens with interferon-beta
 FILE REFERENCE: 71-005,134-1, 705,096
 CURRENT FILING DATE: 2000-05-11
 PRIOR APPLICATION NUMBER: US89 60,143,785
 PRIOR FILING DATE: 1999-05-12
 NUMBER OF SEQ ID NOS: 45
 SOFTWARE: Patent In Ver. 2.1
 SEQ ID NO 1
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-569-722-1

Query Match 95.6% Score 829 DB 19 Length 166
 Best Local Similarity 95.8% Pctd. No. 3,4e-77
 Matches 159 Conservative 1 Mismatches 6 Indels 0 Gaps 0

1 MAYAALGALQASSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 1 MSYNLIGELQSSNPGQKILWLNGLPQIKOMNDIPPEIKOLQPEKQALATY 60
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 61 EMGNLFAIFRQSSSTGWNPTIVNLANVYQINHLKTVIPEKPEKDEFGAMSSI 120
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166
 121 HIKRYVGRILHYLAKRYSHQAMTIVVVEHLKRPYINHLGLOGLN 166

RESULT 9

US-09-569-722-2
 Sequence 2: Application US/09569722

GENERAL INFORMATION:
 APPLICANT: BionZion, David
 TITLE OF INVENTION: HLA-A, B, C, DR, DQ, DP, and DM antigens with interferon-beta
 FILE REFERENCE: 71-005,134-1, 705,096
 CURRENT FILING DATE: 2000-05-11
 PRIOR APPLICATION NUMBER: US89 60,143,785
 PRIOR FILING DATE: 1999-05-12
 NUMBER OF SEQ ID NOS: 45

[illegible]

```

1 TYPE: PRT
2 ORGANISM: Homo sapiens
3 US-09-648-569-2
4
5 Query Match 95.68; Score 829; DB 20; Length 166;
6 Best Local Similarity 95.88; Pred. No. 3,46-77;
7 Matches 159; Conservative 1; Mismatches 6; Indels 0; Gaps
8
9 1 MAYAALGALGASSNPCKLIKMLNENRLEFYLKIQGNPFPEPKKQIQGKQKALVITY 60
10 1 MSNLLDLPDSSNPQKIKMLNENRLEFYLKIQGNPFPEPKKQIQGKQKALVITY 60
11
12 61 EMUNLPAIFPQDSSSTGNNEITVENLANNVYQINHLKTLVEERPEKEDFKALMSL 120
13 61 EMUNLPAIFPQDSSSTGNNEITVENLANNVYQINHLKTLVEERPEKEDFKALMSL 120
14
15 121 HLKRYGRILHYLAKAFYSHCAMTIVRYVLLNENRINRLKGYLRN 166
16 121 HLKRYGRILHYLAKAFYSHCAMTIVRYVLLNENRINRLKGYLRN 166
17
18 RESULT 12
19 US-09-648-569A-2
20 Sequence 2 Application US/09648569A
21 GENERAL INFORMATION:
22 APPLICANT: Pedersen, A.H., et al.
23 APPLICANT: Maxygen Aps
24 TITLE OF INVENTION: Interferon-Beta Variants and Conjugates
25 FILE REFERENCE: 0202us810
26 CURRENT APPLICATION NUMBER: US/09/648,569A
27 CURRENT FILING DATE: 2000-08-25
28 NUMBER OF SEQ ID NOS: 45
29 SOFTWARE: PatentIn Ver. 2.1
30 SEQ ID NO 2
31 LENGTH: 166
32 TYPE: PRT
33 ORGANISM: Homo sapiens
34 US-09-648-569A-2
35
36 Query Match 95.68; Score 829; DB 20; Length 166;
37 Best Local Similarity 95.88; Pred. No. 3,46-77;
38 Matches 159; Conservative 1; Mismatches 6; Indels 0; Gaps
39
40 1 MAYAALGALGASSNPCKLIKMLNENRLEFYLKIQGNPFPEPKKQIQGKQKALVITY 60
41 1 MSNLLDLPDSSNPQKIKMLNENRLEFYLKIQGNPFPEPKKQIQGKQKALVITY 60
42
43 61 EMUNLPAIFPQDSSSTGNNEITVENLANNVYQINHLKTLVEERPEKEDFKALMSL 120
44 61 EMUNLPAIFPQDSSSTGNNEITVENLANNVYQINHLKTLVEERPEKEDFKALMSL 120
45
46 121 HLKRYGRILHYLAKAFYSHCAMTIVRYVLLNENRINRLKGYLRN 166
47 121 HLKRYGRILHYLAKAFYSHCAMTIVRYVLLNENRINRLKGYLRN 166
48
49 RESULT 13
50 US-09-732-436-16
51 Sequence 16, Application US/09732436
52 GENERAL INFORMATION:
53 APPLICANT: Prayaga, Subhidas K
54 APPLICANT: Shinkels, Richard A
55 TITLE OF INVENTION: Novel Polypeptides and Polynucleotides Encoding Same
56 FILE REFERENCE: 15966-615
57 CURRENT FILING DATE: 2001-09-14
58 CURRENT FILING DATE: 2001-09-14
59 PRIOR APPLICATION NUMBER: 60/169,887
60 PRIOR FILING DATE: 1999-12-09
61 PRIOR APPLICATION NUMBER: 60/170,240
62 PRIOR FILING DATE: 1999-12-10
63 NUMBER OF SEQ ID NOS: 26
64 SOFTWARE: PatentIn Ver. 2.1
65 SEQ ID NO 16

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LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-732-436-16

Query Match: 95.6%; Score 829; DB 21; Length 166;
 Best Local Similarity: 95.8%; Pred. No. 3, 46-77;
 Matches 159; Conservative 1; Mismatches 6; Indels 0; Gaps 0.

QY 1 MAYAALGALQASSNFCQOKIWMNRYGCKRPMNFDIPETKQIQQPKEDALITY 60
 DB 1 MSYNLIGFLQSSNFCQOKIWMNRYGCKRPMNFDIPETKQIQQPKEDALITY 60
 QY 61 EMQNFALFRQSSSTGNNETIVENLANYVHQINHLKTVLEKLEKEDFTRGALMSSL 120
 DB 61 EMQNFALFRQSSSTGNNETIVENLANYVHQINHLKTVLEKLEKEDFTRGALMSSL 120
 QY 121 HKRYVGRITHTKAKYSHCAWTIVPEVLLNPRFNLITGYLRN 166
 DB 121 HKRYVGRITHTKAKYSHCAWTIVPEVLLNPRFNLITGYLRN 166

RESULT 14
 US-09-732-436-16
 Sequence 16, Application US/09732436D
 GENERAL INFORMATION:
 APPLICANT: Prayaga, Subhidas K
 APPLICANT: Shimkots, Richard A
 TITLE OF INVENTION: Novel Polypeptides and Polynucleotides Encoding Same
 FILE REFERENCE: 15966-615
 CURRENT FILING DATE: 2000-12-07
 PRIOR FILING DATE: 2000-12-07
 PRIOR APPLICATION NUMBER: 60/169,887
 PRIOR FILING DATE: 1999-12-09
 PRIOR APPLICATION NUMBER: 60/170,230
 PRIOR FILING DATE: 1999-12-10
 NUMBER OF SEQ ID NOS: 26
 SOFTWARE: Patent In Ver. 2.1
 SEQ ID NO 16
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-732-436D-16

Query Match: 95.6%; Score 829; DB 21; Length 166;
 Best Local Similarity: 95.8%; Pred. No. 3, 46-77;
 Matches 159; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY 1 MAYAALGALQASSNFCQOKIWMNRYGCKRPMNFDIPETKQIQQPKEDALITY 60
 DB 1 MSYNLIGFLQSSNFCQOKIWMNRYGCKRPMNFDIPETKQIQQPKEDALITY 60
 QY 61 EMQNFALFRQSSSTGNNETIVENLANYVHQINHLKTVLEKLEKEDFTRGALMSSL 120
 DB 61 EMQNFALFRQSSSTGNNETIVENLANYVHQINHLKTVLEKLEKEDFTRGALMSSL 120
 QY 121 HKRYVGRITHTKAKYSHCAWTIVPEVLLNPRFNLITGYLRN 166
 DB 121 HKRYVGRITHTKAKYSHCAWTIVPEVLLNPRFNLITGYLRN 166

RESULT 15
 US-09-791-537-95294
 Sequence 95293, Application US/09791537
 GENERAL INFORMATION:
 APPLICANT: Biocomix, Inc.
 APPLICANT: Debo, Derek
 APPLICANT: Danczer, Joseph
 TITLE OF INVENTION: THREE DIMENSIONAL STRUCTURES OF PROTEIN FAMILIES AND FAMILY MEMB
 FILE REFERENCE: 261/210
 CURRENT APPLICATION NUMBER: 62/37,791,537
 CURRENT FILING DATE: 2001-02-22

NUMBER OF SEQ ID NOS: 153055
 SOFTWARE: Patent In version 3.0
 SEQ ID NO 95293
 LENGTH: 166
 TYPE: PRT
 ORGANISM: pdb 1A01A
 US-09-791-537-95293

Query Match: 95.6%; Score 829; DB 21; Length 166;
 Best Local Similarity: 95.8%; Pred. No. 3, 46-77;
 Matches 159; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY 1 MAYAALGALQASSNFCQOKIWMNRYGCKRPMNFDIPETKQIQQPKEDALITY 60
 DB 1 MSYNLIGFLQSSNFCQOKIWMNRYGCKRPMNFDIPETKQIQQPKEDALITY 60
 QY 61 EMQNFALFRQSSSTGNNETIVENLANYVHQINHLKTVLEKLEKEDFTRGALMSSL 120
 DB 61 EMQNFALFRQSSSTGNNETIVENLANYVHQINHLKTVLEKLEKEDFTRGALMSSL 120
 QY 121 HKRYVGRITHTKAKYSHCAWTIVPEVLLNPRFNLITGYLRN 166
 DB 121 HKRYVGRITHTKAKYSHCAWTIVPEVLLNPRFNLITGYLRN 166

Search completed: May 6, 2003, 10:01:00
 Job time: 141.5 secs




```

1 APPLICANT: Poplisky, Blake
2 APPLICANT: Poplisky, Laura
3 APPLICANT: Poplisky, Margaret
4 APPLICANT: Whitty, Adrian
5 APPLICANT: Hochman, Paula
6 TITLE OF INVENTION: Polymers/Conjugates of Interleukin beta-1a
7 FILE REFERENCE: 06689 514/0665
8 CURRENT APPLICATION NUMBER: US 2001 04 11 658A
9 PRIOR FILING DATE: 2001 04 11
10 PRIOR FILING DATE: 1999 10 15
11 PRIOR APPLICATION NUMBER: 60/104,572
12 PRIOR FILING DATE: 1998 10 16
13 PRIOR APPLICATION NUMBER: 60/120,161
14 PRIOR FILING DATE: 1999 02 16
15 NUMBER OF SEQ ID NOS: 40
16 SOFTWARE: FASTSeq for Windows Version 4.0
17 SEQ ID NO: 45
18 LENGTH: 166
19 TYPE: PRT
20 ORGANISM: human
21 US 09 832 658A 25

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Query Match          97.1%  Score 84.23  18 52  Length 166
Best Local Similarity 97.0%  Prod. No. 3,400,851
Matches: 1493  Conservative 12  Mismatches 4  Indels 0  Gaps 0

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QY 1 MAAVAAALQASNSRQVQKILWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 60
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DB 1 MSYNLAFATPGSSSTNFWETLWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 60
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
QY 61 EMUNIFATPGSSSTNFWETLWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 120
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DB 61 EMUNIFATPGSSSTNFWETLWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 120
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
QY 121 HIKRYGSHLHYKAKESYSHAWTVRVELLNFTYINSLTYLEN 166
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DB 121 HIKRYGSHLHYKAKESYSHAWTVRVELLNFTYINSLTYLEN 166
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

```

```

RESULT 4
US 09 832 658A 48
Sequence: 48, Application US/09842658A
GENERAL INFORMATION:
1 APPLICANT: Poplisky, Blake
2 APPLICANT: Poplisky, Laura
3 APPLICANT: Poplisky, Margaret
4 APPLICANT: Whitty, Adrian
5 APPLICANT: Hochman, Paula
6 TITLE OF INVENTION: Polymers/Conjugates of Interleukin beta-1a
7 FILE REFERENCE: 06689 514/0665
8 CURRENT APPLICATION NUMBER: US 2001 04 11 658A
9 PRIOR FILING DATE: 2001 04 11
10 PRIOR APPLICATION NUMBER: 60/099,743
11 PRIOR FILING DATE: 1999 10 15
12 PRIOR APPLICATION NUMBER: 60/104,572
13 PRIOR FILING DATE: 1998 10 16
14 PRIOR APPLICATION NUMBER: 60/120,161
15 PRIOR FILING DATE: 1999 02 16
16 NUMBER OF SEQ ID NOS: 40
17 SOFTWARE: FASTSeq for Windows Version 4.0
18 SEQ ID NO: 46
19 LENGTH: 166
20 TYPE: PRT
21 ORGANISM: human
22 US 09 832 658A 48

```

```

Query Match          95.7%  Score 83.02  18 52  Length 166
Best Local Similarity 95.6%  Prod. No. 7,200,841
Matches: 1593  Conservative 12  Mismatches 6  Indels 0  Gaps 0

```

```

QY 1 MAAVAAALQASNSRQVQKILWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 60
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DB 1 MSYNLAFATPGSSSTNFWETLWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 60
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
QY 61 EMUNIFATPGSSSTNFWETLWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 120
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DB 61 EMUNIFATPGSSSTNFWETLWQINQRIQVYIKDKNNPPIPRFKQIGQPGKEDALITY 120
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
QY 121 HIKRYGSHLHYKAKESYSHAWTVRVELLNFTYINSLTYLEN 166
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DB 121 HIKRYGSHLHYKAKESYSHAWTVRVELLNFTYINSLTYLEN 166
    1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

```

```

RESULT 4
PCT-0802-40891-464
Sequence 464, Application pc/T080240891
GENERAL INFORMATION:
1 APPLICANT: Human Genome Sciences, Inc.
2 TITLE OF INVENTION: Albumin Fusion Proteins
3 FILE REFERENCE: P5564PCT
4 CURRENT APPLICATION NUMBER: 60/341,811
5 PRIOR FILING DATE: 2002 12 23
6 PRIOR APPLICATION NUMBER: 60/141,811
7 PRIOR FILING DATE: 2001 12 21
8 PRIOR APPLICATION NUMBER: 60/360,000
9 PRIOR FILING DATE: 2002 02 28
10 PRIOR APPLICATION NUMBER: 60/378,950
11 PRIOR FILING DATE: 2002 05 10
12 PRIOR APPLICATION NUMBER: 60/398,008
13 PRIOR FILING DATE: 2002 07 24
14 PRIOR APPLICATION NUMBER: 60/411,375
15 PRIOR FILING DATE: 2002 09 18
16 PRIOR APPLICATION NUMBER: 60/414,984
17 PRIOR FILING DATE: 2002 10 02
18 PRIOR APPLICATION NUMBER: 60/417,611
19 PRIOR FILING DATE: 2002 10 11
20 PRIOR APPLICATION NUMBER: 60/420,246
21 PRIOR FILING DATE: 2002 10 23
22 PRIOR APPLICATION NUMBER: 60/423,623
23 PRIOR FILING DATE: 2002 11 05
24 PRIOR APPLICATION NUMBER: 60/351,360
25 PRIOR FILING DATE: 2002 01 28
26 Remaining Prior Application data removed - See File Wrapper of PAM.
27 NUMBER OF SEQ ID NOS: 2222
28 SOFTWARE: Patent Ver. 2.0
29 SEQ ID NO: 463
30 LENGTH: 166
31 TYPE: PRT
32 ORGANISM: Homo sapiens
33 PCT-0802-40891-464

```

```

Query Match          95.6%  Score 82.92  18 52  Length 166
Best Local Similarity 95.6%  Prod. No. 9,400,841
Matches: 1593  Conservative 12  Mismatches 6  Indels 0  Gaps 0

```

```

RESULT 5
PCT-0802-40891-464
Sequence 464, Application pc/T080240891
GENERAL INFORMATION:
1 APPLICANT: Human Genome Sciences, Inc.

```

```

1 TITLE OF INVENTION: Albumin Fusion Proteins
2 FILE REFERENCE: PFS04831
3 CURRENT APPLICATION NUMBER: P-1,055,640891
4 PRIOR FILING DATE: 2002-12-23
5 PRIOR APPLICATION NUMBER: 60/41,811
6 PRIORITY CLAIM: YES, 1,2,3
7 PRIOR APPLICATION NUMBER: 60/490,000
8 PRIOR FILING DATE: 2002-02-28
9 PRIOR APPLICATION NUMBER: 60/578,960
10 PRIOR FILING DATE: 2002-05-10
11 PRIOR APPLICATION NUMBER: 60/498,008
12 PRIOR FILING DATE: 2002-07-24
13 PRIOR APPLICATION NUMBER: 60/411,365
14 PRIOR FILING DATE: 2002-09-18
15 PRIOR APPLICATION NUMBER: 60/414,984
16 PRIOR FILING DATE: 2002-10-02
17 PRIOR APPLICATION NUMBER: 60/417,011
18 PRIOR FILING DATE: 2002-10-11
19 PRIOR APPLICATION NUMBER: 60/420,245
20 PRIOR FILING DATE: 2002-10-23
21 PRIOR APPLICATION NUMBER: 60/421,543
22 PRIOR FILING DATE: 2002-11-05
23 PRIOR APPLICATION NUMBER: 60/551,300
24 PRIOR FILING DATE: 2002-01-28
25 REMARKS: Prior Application data removed - See file wrapper of PALM
26 NUMBER OF SEQ ID NOS: 2222
27 SOFTWARE: Patentin Ver. 2.0
28 SEQ ID NO: 464
29 LENGTH: 166
30 TYPE: PRT
31 ORGANISM: Homo sapiens
32 RTT-0502-40891-464

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Query	Match	Similarity	Score	DB	Length
Host	Local	Similarity	95.88	Pred. No. 9	344
Match	Seq	Conservative	1	Mutations	0
				Inserts	0
				Gaps	0
QY	1	MATNALGATGASSENFGQGLLQWLQNSGTFYVTLQRMNFEETFEETKQQLQFVETALTY	60		
	1				
Db	1	MSYNLLQGLQDRSSNFQKRLWQLMQPLEYELKIDRMNDIDREELKQKQGLQETALITY	60		
QY	61	ENLQNFATFQCGSSSTJNNELIVENLLANVYHJINHLKTYLEEKERPGTPQALMSST	120		
	61				
Db	61	ENLQNFATFQCGSSSTJNNELIVENLLANVYHJINHLKTYLEEKERDPTKQKLMSSL	120		
QY	121	HLKRYYSLLHLYLKAQKYSQAWTVKVEILNNEFRINLTGYSFVN	166		
	121				
Db	121	HLKRYYSLLHLYLKAQKYSQAWTVKVEILNNEFRINLTGYSFVN	166		

RESULT 6
 PCT NO:02 40891 527
 Sequence 527 Application No:02/040891
 GENERAL INFORMATION:
 APPLICANT: Human Genome Sciences, Inc.
 TITLE OF INVENTION: Albumin Fusion Proteins
 FILE REFERENCE: P7544641
 CURRENT APPLICATION NUMBER: PCT/US02/40891
 CURRENT FILING DATE: 2002-12-23
 PRIOR APPLICATION NUMBER: 60/341,011
 PRIOR FILING DATE: 2003-12-21
 PRIOR APPLICATION NUMBER: 60/450,000
 PRIOR FILING DATE: 2002-02-28
 PRIOR APPLICATION NUMBER: 60/478,950
 PRIOR FILING DATE: 2002-05-10
 PRIOR APPLICATION NUMBER: 60/398,008
 PRIOR FILING DATE: 2002-07-24
 PRIOR APPLICATION NUMBER: 60/411,455
 PRIOR FILING DATE: 2002-09-18
 PRIOR APPLICATION NUMBER: 60/414,984
 PRIOR FILING DATE: 2002-10-02
 PRIOR APPLICATION NUMBER: 60/417,611
 PRIOR FILING DATE: 2002-10-11

```

? PRIOR APPLICATION NUMBER: 60/420,246
? PRIOR FILING DATE: 2000-10-23
? PRIOR APPLICATION NUMBER: 60/424,623
? PRIOR FILING DATE: 2000-11-05
? PRIOR APPLICATION NUMBER: 60/435,360
? PRIOR FILING DATE: 2000-01-28
? Remaining Prior Application data removed - See File Wrapper of PAM
? NUMBER OF SEQ ID NOS: 222
? SOFTWARE: PatentIn Ver. 2.0
? SEQ ID NO 527
? LENGTH: 166
? TYPE: PRI
? ORGANISM: Homo sapiens
PCT-US02-40891-527

```

[illegible]

```

RESULT 7
PCT-US02-40891-539
Sequence 539, Application IN7US0240891
GENERAL INFORMATION:
APPLICANT: Human Genome Sciences, Inc.
FILE OF INVENTION: Albumin Fusion Proteins
FILE REFERENCE: P5640CP
CURRENT APPLICATION NUMBER: 1770532/40891
CURRENT FILING DATE: 2002-12-23
PRIORITY APPLICATION NUMBER: 60/341,811
PRIORITY FILING DATE: 2001-12-21
PRIORITY APPLICATION NUMBER: 60/360,000
PRIORITY FILING DATE: 2002-02-28
PRIORITY APPLICATION NUMBER: 60/478,950
PRIORITY FILING DATE: 2002-05-10
PRIORITY APPLICATION NUMBER: 60/348,008
PRIORITY FILING DATE: 2002-07-24
PRIORITY APPLICATION NUMBER: 60/411,355
PRIORITY FILING DATE: 2002-09-18
PRIORITY APPLICATION NUMBER: 60/414,984
PRIORITY FILING DATE: 2002-10-02
PRIORITY APPLICATION NUMBER: 60/417,611
PRIORITY FILING DATE: 2002-10-11
PRIORITY APPLICATION NUMBER: 60/420,246
PRIORITY FILING DATE: 2002-10-23
PRIORITY APPLICATION NUMBER: 60/423,623
PRIORITY FILING DATE: 2002-11-05
PRIORITY APPLICATION NUMBER: 60/451,360
PRIORITY FILING DATE: 2002-01-28
Remaining Prior Application data removed - See File Wrapper of PAMM
NUMPWP OF SEQ ID NOS: 222
SOFTWARE: Patent In Ver. 2.0
SEQ ID NO 539
LENGTH: 166
TYPE: PRT
ORGANISM: Homo sapiens
ACT-US02-40891-539

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Query Match	95.68;	Score 829;	DB 1;	Length 166;
Best Local Similarity	95.88;	Pred. No. 9, 30-84;		
Matches 159; Conservative	1;	Mismatches 6;	Indels 0;	Gaps 0;


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Host Local Similarity 95.8% Prod. No. 9,30-84
Matches 1597 Conservative 17 Mismatches 67 Indels 0 Gaps 0
QY 1 MAAVALCALVASSNQVQKILWQINRLEYCLRPNNPPTPFKQIQ4QKPDAAITTY 60
   | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 1 MSYNLAFTLRSSNENQKILWQINRLEYCLRPNNPPTPFKQIQ4QKPDAAITTY 60
QY 61 EMQUNIFATFRQSSSTGWETTVENILANVYHQINHKTVLEEKLEKRFITGALMSS 120
   | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 61 EMQUNIFATFRQSSSTGWETTVPNLANVYHQINHKTVLEEKLEKRFITGALMSS 120
QY 121 HIKRYVSEIIRFKRYYSGAWTIWVEELRNPFYINPETYLRN 166
   | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Db 121 HIKRYVSEIIRFKRYYSGAWTIWVEELRNPFYINPETYLRN 166

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Search completed: May 6, 2003, 10:02:57
 Job time: 560.6 secs

[illegible]

```

DE   01-JUN-2001 (TREMBLREL_17; last annotation update)
RE   Interferon beta 1 precursor.
OS   Sus scrofa (pig).
OC   Eukaryota; Metazoa; Chordata; Carnivora; Vertebrata; Euteleostomi;
OX   Mammalia; Eutheria; Cetartiodactylia; Suidae; Suis.
RN   [1]
NCBI_TaxID=9823;
RA   SEQUENCE FROM N.A.
RT   Artursson K., Gobl A., Lindarsson M., Johansson M., Alm O.;
    Submitted (Apr 1992) to the EMBL/GenBank/DDBJ databases.
CC   -1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
    FAMILY.
DR   EMBL: M66762; AAA1056.1; -.
DR   EMBL: S41178; AB02723.1; -.
DR   HSSP: P01574; IAI1.
DR   InterPro: IPR000471; Interferon_dbd.
DR   Pfam: PF00143; Interferon_1.
DR   PRINTS: PR00366; INTERFERON-AB.
DR   PRODOM: PD000550; Interferon_dbd_1.
DR   SMART: SM00076; Idbdy_1.
KW   Activator; Cytokine; Signal.
FT   SIGNAL          1..21             POTENTIAL.
PT   CHAIN           22..186          INTERFERON BETA 1.
SQ   SEQUENCE       186 AA; 21678 MW; 5F16B8BCA6E6D0C CRC64;
Query Match:      60.3% Score 525.57 DB 6; Length 1867;
Best Local Similarity 61.4%; Prod. No. 7.5e+39;
Matches 102; Conserved: 28; Mismatches 35; Indels 1; Gaps
QY     1 MSYNLGFLGRSNPFQCRLTLMQLMTRLECYLKDMNPDPEIKOLGDPCKEMALTY 60
Db     22 MSYDLVLRQGRRSNACGLSLAGLLCTGYCLGLEKMRIVETRMWLPYCCKELAVLIH 81
QY     61 EMLGNLFATFGVASSFWNNLVNLNVNYMGINHRVLENLEKRDREGANSE 120
Db     82 EMLGDIFGIPLFNFSSTWNFFVTLVELMGMDETLEEIMPERPRKD-MILL 140
QY     121 ELRPYGFRLHYFAKEYSHAMITVRVLINSRYRIIRLTFYLNN 166
Db     141 ALKPYYGVLYPYSPFYPSAMVVVGHIIPIRIETARDTEYGRN 186

RESULT 4
O9GIL5 PRELIMINARY PRI: 195 AA.
AC O9GIL5;
DT 01-MAR-2001 (TREMBLREL_16; created)
DT 01-MAR-2001 (TREMBLREL_16; last sequence update)
DI 01 DEC 2001 (TREMBLREL_19; last annotation update)
DE Interferon tau.
GN IFN-TAU-CI.
OS Bos taurus (bovine).
OC Eukaryota; Metazoa; Chordata; Carnivora; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactylia; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN   [1]
RA   SEQUENCE FROM N.A.
RT   Chung Y.G., Seidel G.R. Jr.;
    "Cloning bovine interferon-tau genes and characterizing their
    transcriptional expression during early pregnancy."?
    Submitted (FEU-2000) to the EMBL/Genbank/DDBJ databases.
CC   -1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
    FAMILY.
DR   EMBL: AF238613; AAC14170.1; .
DR   HSSP: P01563; ZHE1.
DR   InterPro: IPR000471; Interferon_dbd.
```

DR Pfam: PF00143; Interferon_1.
 DR PRINTS: PR00266; INTERFERONAB.
 DR ProDom: PD000550; Interferon_abd; 1.
 DR SMART: SM00076; Irbad; 1.
 DR PROSITE: PS00252; INTERFERON_A_B_D; 1.
 KW Antiviral; Cytokine.
 SQ SEQUENCE 195 AA: 2239 MW: 689744 IP20IFGFA CRG64.

Query Match 40.1% Score 262.5; DB 6; Length 195;
 Best Local Similarity 40.4%; Pred. No. 13e-15;
 Matches 53; Conservative 29; Mismatches 49; Indels 3; Gaps 2;

QY 19 KLWLNKRL EYCKRMVGLLEELKQLQGFQKEMALTYEMQNIPAFIROSSS 76
 DB 39 KLLQNM RLSTHSCLOKRPDRI PMKVPFDQIQKQASVIFEMIQCFENLFEHSS 97
 QY 77 TGMRETVENLAVYHQINLKTVLEKEFEKFTGCAIIMSTHLEKYSALILAKK 136
 DB 98 AAMTILELCTGLHQDLDDLQVMEKDSALCPMPLITVKKYTGITVYLKK 157
 QY 137 EYSHAMTIVETLR 152
 DB 158 EYSDAMETIVEMR 173

RESULT 5

Q28844

AC Q28844 PRELIMINARY; PRT: 195 AA.

DT 01-NOV-1996 (TREMBLrel. 01, Created)

DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)

DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)

DE Interferon-omeg48.

OS Oryctolagus cuniculus (Rabbit).

CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Laomorphia; Leporidae; Oryctolagus

CC NCBI_TaxID=9986;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE: 94132653; PubMed-830151;

RA Charlier M., Fardion P., Poissard M., Martial J., Gage P.;

RT "Cloning and structural analysis of four genes encoding interferon-

RT omega in rabbit."

RL J. Interferon Res. 13:313-322(1993).

CC -1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA

CC FAMILY.

CC EMBL: S68999; AAC60525.2; -.

DR HSSP: P01563; 2HIE.

DR InterPro: IPR000471; Interferon_abd.

DR Pfam: PF00143; Interferon_1.

DR PRINTS: PR00266; INTERFERONAB.

DR ProDom: PD000550; Interferon_abd; 1.

DR SMART: SM00076; Irbad; 1.

DR PROSITE: PS00252; INTERFERON_A_B_D; 1.

KW Antiviral; Cytokine.

SQ SEQUENCE 195 AA: 21981 MW: 643535 E5144AFV CRG64.

Query Match 29.9% Score 261; DB 6; Length 195;
 Best Local Similarity 41.9%; Pred. No. 1.8e-15;
 Matches 67; Conservative 21; Mismatches 58; Indels 0; Gaps 0;

QY 31 CLKPMFNDIPFEIKQLQGFQKEMALTYEMQNIPAFIROSSSGKMTIVENLAN 90
 DB 52 CLKRRKRFQFPFRVNSQDQKQAVSLHBMQDIPNLHTHSSAMNNTLIEDLHA 111
 QY 91 VYHDTNLIKTVLEKEFEKFTGCAIIMSTHLEKYSALILAKK 150
 DB 112 LHWLQGLFTVQAMGEESVLTADPTLMKRYDPTETVYDKKHSCTAMETVMEI 171
 QY 151 LRFYRINELTYLRN 166
 DB 172 KRAFSSTADLQESLRS 187

RESULT 6

Q28845

AC Q28845 PRELIMINARY; PRT: 195 AA.

DT 01-NOV-1996 (TREMBLrel. 01, Created)

DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)

DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)

DE Interferon-omeg45.

OS Oryctolagus cuniculus (Rabbit).

CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Laomorphia; Leporidae; Oryctolagus.

CC NCBI_TaxID=9986;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE: 94132653; PubMed-830151;

RA Charlier M., Fardion P., Poissard M., Martial J., Gage P.;

RT "Cloning and structural analysis of four genes encoding interferon

RT omega in rabbit."

RL J. Interferon Res. 13:313-322(1993).

CC -1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA

CC FAMILY.

CC EMBL: S69000; AAC60526.1; -.

DR HSSP: P01563; 2HIE.

DR InterPro: IPR000471; Interferon_abd.

DR Pfam: PF00143; Interferon_1.

DR PRINTS: PR00266; INTERFERONAB.

DR ProDom: PD000550; Interferon_abd; 1.

DR SMART: SM00076; Irbad; 1.

DR PROSITE: PS00252; INTERFERON_A_B_D; 1.

KW Antiviral; Cytokine.

SQ SEQUENCE 195 AA: 21976 MW: 67567303 E6A928 CRG64.

Query Match 29.0% Score 263; DB 6; Length 195;
 Best Local Similarity 40.4%; Pred. No. 9e-15;
 Matches 57; Conservative 27; Mismatches 60; Indels 0; Gaps 0;

QY 31 CLKPMFNDIPFEIKQLQGFQKEMALTYEMQNIPAFIROSSSGKMTIVENLAN 90
 DB 52 CLKRRKRFQFPFRVNSQDQKQAVSLHBMQDIPNLHTHSSAMNNTLIEDLHA 111
 QY 91 VYHDTNLIKTVLEKEFEKFTGCAIIMSTHLEKYSALILAKKYSHAWTIVREI 150
 DB 112 LHWLQGLFTVQAMGEESVLTADPTLMKRYDPTETVYDKKHSCTAMETVMEI 171
 QY 151 LRFYRINELTYLRN 166
 DB 172 KRAFSSTADLQESLRS 187

RESULT 7

Q28562

AC Q28562 PRELIMINARY; PRT: 195 AA.

DT 01-NOV-1996 (TREMBLrel. 01, Created)

DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)

DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)

DE Ovine interferon alpha precursor.

GN AMY 49.

OS Ovis aries (Sheep).

CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

CC Mammalia; Eutheria; Cetartiodactylia; Ruminantia; Pecora; Bovidae;

CC Bovidae; Caprinae; Ovis.

CC NCBI_TaxID=9940;

RN [1]

RP TISSUE: LIVER;

RX MEDLINE: 92039590; PubMed-1937057;

RA Whaley A.E., Carroll R.S., Imakawa K.;

RT "Cloning and analysis of a gene encoding ovine interferon alpha-11."

CC -1- SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA

CC FAMILY.

SEQUENCE FROM N.A.
 RA Zeng Y., Li M., Zhou Y., Guo H., Hou Y.:
 "The cloning, sequencing of the primary structure and expression in P.
 R. coli Chinese hamster VBN M1 gene."
 RL SGI, China B. 0.0.0(0).
 RN 121
 KN SEQUENCE FROM N.A.
 RA Xu L.:
 Submitted (Apr 1999) to the EMBL/Genbank/DBJ databases
 CC 1. SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
 CC FAMILY.
 DE EMBL: 025670; AAT70091.1;
 DE HSSP: P01563; 2HIE;
 DE InterPro: IPR000471; Interferon_abd.
 DE Pfam: PF00143; Interferon_1;
 DE PRINTS: PR00266; INTERFERONAB.
 DE ProDom: PD000550; Interferon_abd; 1.
 DE SMART: SM00076; Irbid; 1.
 DE PROSITE: PS00262; INTERFERON_A_3_10; 1.
 KW Antiviral; cytokine.
 FT NIDR
 SU SEQUENCE 174 AA; 20249 MW; HIC3YAF593401675 CRG64;

Query Match 28.78; Score 250; DB 4; Length 174;
 Best Local Similarity 48.08; Pred. No. 1,5e-14;
 Matches 52; Conserved 42; Mismatches 51; Indels 2; Gaps 2.

QY 41 CLKRMNFDPERIKQIQFQKIDAAITFMQNIFAIPRODSSSTGNITVNIILAN 90
 DB 41 CLKRMDFRFGKRSQKKAIVMSALHEMIGQIFSPHTESSAAMMTLLDOHTG 90
 QY 91 VYHQTINKIVLEKLEKEDEFTKALMSLSHLKRYGRLHYLAKESHCAMTVRVE 149
 DB 91 LHOVLGHFTVLY-VVGGPSAGVASSPALTLPFYGJLVYLEKESYSCAMVEDRME 149
 QY 150 LIRNFKINLCTYLRN 166
 DB 150 LMRSLSTINMOEKLRS 166

RESULT 14
 Q9GL17
 ID Q9GL17 PRELIMINARY; PRT; 189 AA.
 AC Q9GL17;
 DE 01-DEC-2001 (InterPro: 19, Created)
 DE 01-MAR-2001 (InterPro: 19, Last sequence update)
 DE 01-MAR-2002 (InterPro: 20, Last annotation update)
 DE Interferon alpha precursor.
 GN IFN ALPHA.
 OS Saguinus oedipus (Cotton top tamarin).
 CC Eukaryota; Metazoa; Chordata; Gracata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Primates; Platyrrhini; Callitrichidae; Saguinus.
 OX NCBI Taxid 9490;
 RN 111
 KN SEQUENCE FROM N.A.
 RA "Genbank A. Antistichio L., Cliberto G., Palombo F., Traboni C.;
 "Recombinant cotton-top tamarin interferon: a new tool for a primate
 hepatitis model."
 RL Submitted (Oct 1999) to the EMBL/Genbank/DBJ databases.
 CC 1. SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
 CC FAMILY.
 DE EMBL: AL250196; CA44125.1;
 DE InterPro: IPR000471; Interferon_abd.
 DE Pfam: PF00143; Interferon_1;
 DE ProDom: PD000550; Interferon_1;
 DE PROSITE: PS00262; INTERFERON_A_3_10; UNKNOWN_1;
 KW Antiviral; cytokine; Stimul.
 FT SIGNAL 1 23 POTENTIAL.
 FT CHAIN 1 189 INTERFERON-ALPHA.
 SU SEQUENCE 189 AA; 22052 MW; 9E34897F03290BA CRG64;

Query Match 28.78; Score 250; DB 6; Length 189;
 Best Local Similarity 47.88; Pred. No. 1.6e-14;

Matches 54; Conservative 24; Mismatches 51; Indels 14; Gaps 2;
 QY 31 CLKRMNFDPERIKQIQFQKIDAAITFMQNIFAIPRODSSSTGNITVNIILAN 90
 DB 52 CLKRMDFRFGKRSQKKAIVMSALHEMIGQIFSPHTESSAAMMTLLDOHTG 90
 QY 91 VYHQTINKIVLEKLEKEDEFTKALMSLSHLKRYGRLHYLAKESHCAMTVRVE 149
 DB 91 LHOVLGHFTVLY-VVGGPSAGVASSPALTLPFYGJLVYLEKESYSCAMVEDRME 149
 QY 144 TIVRFTIRNRYRINLCTYLRN 166
 DB 165 EYVRAIMRSFSLTNLOKLRSS 187

RESULT 15
 Q9GL16
 ID Q9GL16 PRELIMINARY; PRT; 195 AA.
 AC Q9GL16;
 DE 01-MAR-2001 (InterPro: 16, Created)
 DE 01-MAR-2001 (InterPro: 16, Last sequence update)
 DE 01-DEC-2001 (InterPro: 19, Last annotation update)
 DE Interferon tau.
 GN IFN-TAU-C3.
 OS Bos taurus (Bovine).
 CC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 CC Bovidae; bovinæ; bos.
 OX NCBI Taxid 9913;
 RN 111
 KN SEQUENCE FROM N.A.
 RA Chung Y.G., Seidel G.E. Jr.:
 "Cloning bovine interferon-tau genes and characterizing their
 transcriptional expression during early pregnancy."
 RL Submitted (Feb-2000) to the EMBL/Genbank/DBJ databases.
 CC 1. SIMILARITY: BELONGS TO THE INTERFERON ALPHA, BETA AND DELTA
 CC FAMILY.
 DE EMBL: AF238611; AAC1468.1;
 DE HSSP: P01563; 2HIE;
 DE InterPro: IPR000471; Interferon_abd.
 DE Pfam: PF00143; Interferon_1;
 DE PRINTS: PR00266; INTERFERONAB.
 DE ProDom: PD000550; Interferon_abd; 1.
 DE SMART: SM00076; Irbid; 1.
 KW Antiviral; cytokine.
 SU SEQUENCE 195 AA; 22160 MW; 60B1FAE39BF034FA CRG64;

Query Match 28.34; Score 246.57; DB 6; Length 195;
 Best Local Similarity 39.08; Pred. No. 3.4e-14;
 Matches 53; Conserved 28; Mismatches 52; Indels 4; Gaps 2;
 QY 13 CLKRMNFDPERIKQIQFQKIDAAITFMQNIFAIPRODSSSTGNITVNIILAN 90
 DB 34 CLKRMDFRFGKRSQKKAIVMSALHEMIGQIFSPHTESSAAMMTLLDOHTG 90
 QY 77 TGMNITVNIILANVYHQTINKIVLEKLEKEDEFTKALMSLSHLKRYGRLHYLAK 146
 DB 98 AAMNTTLEFOLCTGLOOGLDLEDAIGVGGKDSIMSGMPLLEVAKYHDIIVYIAEK 157
 QY 137 FYSHCAMTVRVEIR 152
 DB 158 EYSDCAWELIYEMMR 173

Search completed: May 6, 2003, 09:54:40
 Job time : 55 secs


```

1 APPLICANT: Poplansky, Blake
2 APPLICANT: Runkel, Laura
3 APPLICANT: Bricklemeier, Margot
4 APPLICANT: Whitty, Adrian
5 APPLICANT: Goodman, Paula
6 TITLE OF INVENTION: Polymer Conjugates of Interleukin beta-1a
7 FILE REFERENCE: and bases
8 CURRENT APPLICATION NUMBER: US/09/832,658A
9 PRIOR FILING DATE: 2001-04-11
10 PRIOR APPLICATION NUMBER: PCT/US/02/40891
11 PRIOR FILING DATE: 1999-10-15
12 PRIOR APPLICATION NUMBER: 60/414,984
13 PRIOR FILING DATE: 1998-10-16
14 PRIOR APPLICATION NUMBER: 60/420,161
15 PRIOR FILING DATE: 1999-02-16
16 NUMBER OF SEQ ID NOS: 40
17 SOFTWARE: FastSeq for Windows Version 4.0
18 SEQ ID NO: 48
19 LENGTH: 166
20 TYPE: PRT
21 ORGANISM: human
22 OS: 09_832_658A_48

```

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Query Match          98.8%  Score 8602  DB 5:  Length 166;
Best Local Similarity 98.8%  Pred. No. 6,86-86;
Matches 164:  Conservative  0:  Mismatches  2:  Indels  0:  Gaps  0:

```

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UY 1 MSNLLGTFGRSSNFGOKLIMWLNKLELYGLKDRNFTIPPEFQLOQFOKEDALITY 60
DB 1 MSNLLGTFGRSSNFGOKLIMWLNKLELYGLKDRNFTIPPEFQLOQFOKEDALITY 60
UY 61 EMLGNFAIFPRDSSSTCMNFTIVENLLANNVHQINHLKTVLEFKLEKEDTFKALMSL 120
DB 61 EMLGNFAIFPRDSSSTCMNFTIVENLLANNVHQINHLKTVLEFKLEKEDTFKALMSL 120
UY 121 HKRYGRIILHYLAKKYSHCAMTVKVELLKNFTIRNGLNGLYLN 166
DB 121 HKRYGRIILHYLAKKYSHCAMTVKVELLKNFTIRNGLNGLYLN 166

```

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RESULT 4
PCT-US02-40891-464
1 Sequence 464, Application PCT/US02/40891
2 GENERAL INFORMATION:
3 APPLICANT: Human Genome Sciences, Inc.
4 TITLE OF INVENTION: Aluminin Fusion Proteins
5 FILE REFERENCE: PE564PCT
6 CURRENT APPLICATION NUMBER: PCT/US02/40891
7 PRIOR FILING DATE: 2002-12-24
8 PRIOR APPLICATION NUMBER: 60/441,811
9 PRIOR FILING DATE: 2001-12-21
10 PRIOR APPLICATION NUMBER: 60/460,000
11 PRIOR FILING DATE: 2002-02-28
12 PRIOR APPLICATION NUMBER: 60/478,950
13 PRIOR FILING DATE: 2002-05-10
14 PRIOR APPLICATION NUMBER: 60/498,008
15 PRIOR FILING DATE: 2002-07-24
16 PRIOR APPLICATION NUMBER: 60/411,455
17 PRIOR FILING DATE: 2002-09-18
18 PRIOR APPLICATION NUMBER: 60/414,984
19 PRIOR FILING DATE: 2002-10-02
20 PRIOR APPLICATION NUMBER: 60/417,611
21 PRIOR FILING DATE: 2002-10-11
22 PRIOR APPLICATION NUMBER: 60/420,246
23 PRIOR FILING DATE: 2002-10-24
24 PRIOR APPLICATION NUMBER: 60/423,624
25 PRIOR FILING DATE: 2002-11-05
26 PRIOR APPLICATION NUMBER: 60/451,460
27 PRIOR FILING DATE: 2002-01-28
28 Remaining Prior Application data removed
29 NUMBER OF SEQ ID NOS: 2222
30 SOFTWARE: Patent In Vct. 2.0
31 See File Wrapper or PALM.

```

```

1 SEQ ID NO 464
2 LENGTH: 166
3 TYPE: PRT
4 ORGANISM: Homo sapiens
5 PCT-US02-40891-464

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```

Query Match          98.5%  Score 859;  DB 1:  Length 166;
Best Local Similarity 98.8%  Pred. No. 6,86-86;
Matches 164:  Conservative  0:  Mismatches  2:  Indels  0:  Gaps  0:

```

```

UY 1 MSNLLGTFGRSSNFGOKLIMWLNKLELYGLKDRNFTIPPEFQLOQFOKEDALITY 60
DB 1 MSNLLGTFGRSSNFGOKLIMWLNKLELYGLKDRNFTIPPEFQLOQFOKEDALITY 60
UY 61 EMLGNFAIFPRDSSSTCMNFTIVENLLANNVHQINHLKTVLEFKLEKEDTFKALMSL 120
DB 61 EMLGNFAIFPRDSSSTCMNFTIVENLLANNVHQINHLKTVLEFKLEKEDTFKALMSL 120
UY 121 HKRYGRIILHYLAKKYSHCAMTVKVELLKNFTIRNGLNGLYLN 166
DB 121 HKRYGRIILHYLAKKYSHCAMTVKVELLKNFTIRNGLNGLYLN 166

```

```

RESULT 4
PCT-US02-40891-464
1 Sequence 464, Application PCT/US02/40891
2 GENERAL INFORMATION:
3 APPLICANT: Human Genome Sciences, Inc.
4 TITLE OF INVENTION: Aluminin Fusion Proteins
5 FILE REFERENCE: PE564PCT
6 CURRENT APPLICATION NUMBER: PCT/US02/40891
7 PRIOR FILING DATE: 2002-12-24
8 PRIOR APPLICATION NUMBER: 60/441,811
9 PRIOR FILING DATE: 2001-12-21
10 PRIOR APPLICATION NUMBER: 60/460,000
11 PRIOR FILING DATE: 2002-02-28
12 PRIOR APPLICATION NUMBER: 60/478,950
13 PRIOR FILING DATE: 2002-05-10
14 PRIOR APPLICATION NUMBER: 60/498,008
15 PRIOR FILING DATE: 2002-07-24
16 PRIOR APPLICATION NUMBER: 60/411,455
17 PRIOR FILING DATE: 2002-09-18
18 PRIOR APPLICATION NUMBER: 60/414,984
19 PRIOR FILING DATE: 2002-10-02
20 PRIOR APPLICATION NUMBER: 60/417,611
21 PRIOR FILING DATE: 2002-10-11
22 PRIOR APPLICATION NUMBER: 60/420,246
23 PRIOR FILING DATE: 2002-10-24
24 PRIOR APPLICATION NUMBER: 60/423,624
25 PRIOR FILING DATE: 2002-11-05
26 PRIOR APPLICATION NUMBER: 60/451,460
27 Remaining Prior Application data removed
28 NUMBER OF SEQ ID NOS: 2222
29 SOFTWARE: Patent In Vct. 2.0
30 SEQ ID NO 464
31 TYPE: PRT
32 ORGANISM: Homo sapiens
33 PCT-US02-40891-464

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```

Query Match          98.5%  Score 859;  DB 1:  Length 166;
Best Local Similarity 98.8%  Pred. No. 6,86-86;
Matches 164:  Conservative  0:  Mismatches  2:  Indels  0:  Gaps  0:

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UY 1 MSNLLGTFGRSSNFGOKLIMWLNKLELYGLKDRNFTIPPEFQLOQFOKEDALITY 60
DB 1 MSNLLGTFGRSSNFGOKLIMWLNKLELYGLKDRNFTIPPEFQLOQFOKEDALITY 60
UY 61 EMLGNFAIFPRDSSSTCMNFTIVENLLANNVHQINHLKTVLEFKLEKEDTFKALMSL 120
DB 61 EMLGNFAIFPRDSSSTCMNFTIVENLLANNVHQINHLKTVLEFKLEKEDTFKALMSL 120

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Db 61 EMLONIFAI FRODSSSTGWNETIVENILANYHQTNIHKLIVLEKIKEDPTCKLMSSL 120
 Oy 121 HUKRYGRLIHLAKAKESHCAMTIVVEILRNFTINRLCYLGN 166
 Db 121 HUKRYGRLIHLAKAKESHCAMTIVVEILRNFTINRLCYLGN 166

RESULT 14
 PCT-0502-40892-167
 Sequence 167, Application PCT/US02/40892

GENERAL INFORMATION:
 APPLICANT: Human Genome Sciences, Inc.
 TITLE OF INVENTION: Albumin Fusion Proteins
 FILE REFERENCE: P5574PCT
 CURRENT APPLICATION NUMBER: PCT/US02/40892
 PRIOR FILING DATE: 2002-12-23
 PRIOR FILING DATE: 2001-12-21
 PRIOR APPLICATION NUMBER: 60/441,811
 PRIOR FILING DATE: 2002-02-28
 PRIOR APPLICATION NUMBER: 60/478,950
 PRIOR FILING DATE: 2002-05-10
 PRIOR APPLICATION NUMBER: 60/498,008
 PRIOR FILING DATE: 2002-07-24
 PRIOR APPLICATION NUMBER: 60/411,355
 PRIOR FILING DATE: 2002-09-18
 PRIOR APPLICATION NUMBER: 60/414,984
 PRIOR FILING DATE: 2002-10-02
 PRIOR APPLICATION NUMBER: 60/417,611
 PRIOR FILING DATE: 2002-10-11
 PRIOR APPLICATION NUMBER: 60/420,246
 PRIOR FILING DATE: 2002-10-23
 PRIOR APPLICATION NUMBER: 60/423,623
 PRIOR FILING DATE: 2002-11-05
 PRIOR APPLICATION NUMBER: 60/430,358
 PRIOR FILING DATE: 2002-01-24
 Remaining Prior Application data removed - See file wrapper or PALM.
 NUMBER OF SEQ ID NOS: 858
 SOFTWARE: PatentIn Ver. 2.0
 SEQ ID NO: 167
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 PCT-0502-40892-167

Query Match 98.5% Score 859; DB 1; Length 166;
 Best Local Similarity 98.8%; Pred. No. 6,8e-86;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
 Oy 1 MSYNLIGFGRSSNFGCKLWQNLNRIEYCLKDMNFDIPEELKQIQFPEKEDALITY 60
 Db 1 MSYNLIGFGRSSNFGCKLWQNLNRIEYCLKDMNFDIPEELKQIQFPEKEDALITY 60
 Oy 61 EMLONIFAI FRODSSSTGWNETIVENILANYHQTNIHKLIVLEKIKEDPTCKLMSSL 120
 Db 61 EMLONIFAI FRODSSSTGWNETIVENILANYHQTNIHKLIVLEKIKEDPTCKLMSSL 120
 Oy 121 HUKRYGRLIHLAKAKESHCAMTIVVEILRNFTINRLCYLGN 166
 Db 121 HUKRYGRLIHLAKAKESHCAMTIVVEILRNFTINRLCYLGN 166

RESULT 14
 PCT-0502-40892-647
 Sequence 647, Application PCT/US02/40892
 GENERAL INFORMATION:
 APPLICANT: Human Genome Sciences, Inc.
 TITLE OF INVENTION: Albumin Fusion Proteins
 FILE REFERENCE: P5574PCT
 CURRENT APPLICATION NUMBER: PCT/US02/40892
 PRIOR FILING DATE: 2002-12-23
 PRIOR APPLICATION NUMBER: 60/441,811
 PRIOR FILING DATE: 2001-12-21

PRIOR APPLICATION NUMBER: 60/460,000
 PRIOR FILING DATE: 2002-02-28
 PRIOR APPLICATION NUMBER: 60/478,950
 PRIOR FILING DATE: 2002-05-10
 PRIOR APPLICATION NUMBER: 60/498,008
 PRIOR FILING DATE: 2002-07-24
 PRIOR APPLICATION NUMBER: 60/411,355
 PRIOR FILING DATE: 2002-09-18
 PRIOR APPLICATION NUMBER: 60/414,984
 PRIOR FILING DATE: 2002-10-02
 PRIOR APPLICATION NUMBER: 60/417,611
 PRIOR FILING DATE: 2002-10-11
 PRIOR APPLICATION NUMBER: 60/420,246
 PRIOR FILING DATE: 2002-10-23
 PRIOR APPLICATION NUMBER: 60/423,623
 PRIOR FILING DATE: 2002-11-05
 PRIOR APPLICATION NUMBER: 60/430,358
 PRIOR FILING DATE: 2002-01-24
 Remaining Prior Application data removed - See file wrapper or PALM.
 NUMBER OF SEQ ID NOS: 858
 SOFTWARE: PatentIn Ver. 2.0
 SEQ ID NO: 647
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 PCT-0502-40892-647

Query Match 98.5% Score 859; DB 1; Length 166;
 Best Local Similarity 98.8%; Pred. No. 6,8e-86;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
 Oy 1 MSYNLIGFGRSSNFGCKLWQNLNRIEYCLKDMNFDIPEELKQIQFPEKEDALITY 60
 Db 1 MSYNLIGFGRSSNFGCKLWQNLNRIEYCLKDMNFDIPEELKQIQFPEKEDALITY 60
 Oy 61 EMLONIFAI FRODSSSTGWNETIVENILANYHQTNIHKLIVLEKIKEDPTCKLMSSL 120
 Db 61 EMLONIFAI FRODSSSTGWNETIVENILANYHQTNIHKLIVLEKIKEDPTCKLMSSL 120
 Oy 121 HUKRYGRLIHLAKAKESHCAMTIVVEILRNFTINRLCYLGN 166
 Db 121 HUKRYGRLIHLAKAKESHCAMTIVVEILRNFTINRLCYLGN 166

RESULT 15
 PCT-0502-40892-648
 Sequence 648, Application PCT/US02/40892
 GENERAL INFORMATION:
 APPLICANT: Human Genome Sciences, Inc.
 TITLE OF INVENTION: Albumin Fusion Proteins
 FILE REFERENCE: P5574PCT
 CURRENT APPLICATION NUMBER: PCT/US02/40892
 PRIOR FILING DATE: 2002-12-23
 PRIOR APPLICATION NUMBER: 60/441,811
 PRIOR FILING DATE: 2002-02-28
 PRIOR APPLICATION NUMBER: 60/478,950
 PRIOR FILING DATE: 2002-05-10
 PRIOR APPLICATION NUMBER: 60/498,008
 PRIOR FILING DATE: 2002-07-24
 PRIOR APPLICATION NUMBER: 60/411,355
 PRIOR FILING DATE: 2002-09-18
 PRIOR APPLICATION NUMBER: 60/414,984
 PRIOR FILING DATE: 2002-10-02
 PRIOR APPLICATION NUMBER: 60/417,611
 PRIOR FILING DATE: 2002-10-11
 PRIOR APPLICATION NUMBER: 60/420,246
 PRIOR FILING DATE: 2002-10-23
 PRIOR APPLICATION NUMBER: 60/423,623
 PRIOR FILING DATE: 2002-11-05
 PRIOR APPLICATION NUMBER: 60/430,358
 PRIOR FILING DATE: 2002-01-24

Remaining Prior Application data removed - See File Wrapper or PALM.
NUMBER OF SEQ ID NOS: 858
SOFTWARE: Patent In Ver. 2.0
SEQ ID NO 648
LENGTH: 166
TYPE: PRT
ORGANISM: Homo sapiens
PCT-0502-40842-648

Query Match 98.5%; Score 859; DB 1; Length 166;
Best Local Similarity 98.8%; Ptd. No. 6,8e-86;
Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 MSYNLLGFTQSSNFCCKLLWGLNGELPYCLKDKNFCIDPEIKOLQFQNEAALITY 60
DB 1 MSYNLLGFTQSSNFCCKLLWGLNGELPYCLKDKNFCIDPEIKOLQFQNEAALITY 60
QY 61 FMLQNTFAIFRODSSSTGWNETIVENLLANVYHQINHLKTYLEEKLEKEDFTRGALMSSL 120
DB 61 FMLQNTFAIFRODSSSTGWNETIVENLLANVYHQINHLKTYLEEKLEKEDFTRGALMSSL 120
QY 121 HKRYVYCKLHYLAKKYSHCAMTIVVEILRNRYINRLTGYLRN 166
DB 121 HKRYVYCKLHYLAKKYSHCAMTIVVEILRNRYINRLTGYLRN 166

Search completed: May 6, 2003, 10:02:56
Job time : 56.5 secs

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[illegible]

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GENERAL INFORMATION:
APPLICANT: Treco, Douglas A.
APPLICANT: Heartland, Michael W.
APPLICANT: Haug, Brian M.
APPLICANT: Seiden, Richard F.
TITLE OF INVENTION: Protein Production and Delivery
NUMBER OF SEQUENCES: 30
CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Hook, Smith & Reynolds, P.C.
STREET: Two Millia Drive
CITY: Lexington
STATE: Massachusetts
COUNTRY: USA
ZIP: 02173
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPILER: IBM PC compatible
OPERATING SYSTEM: PC DOS/MS DOS
SOFTWARE: Patent In Release #1.0, Version #1.00
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US-98/406,030A
FILING DATE: 17 MAR 1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US-98/243,391
FILING DATE: 14-MAY-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US-97/085,586
FILING DATE: 04-DEC-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US-97/911,533
FILING DATE: 10-JUL-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US-97/787,840
FILING DATE: 05-NOV-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US-97/789,188
FILING DATE: 05-NOV-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: EP-97/069,11704
FILING DATE: 02-DEC-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PT/US92/09627
FILING DATE: 05-NOV-1992
ATTORNEY/AGENT INFORMATION:
NAME: Gadadhar, Fatima
REGISTRATION NUMBER: 42,427
REFERENCE/EXEMPTION NUMBER: IRI95-01
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 861-6240
TELEFAX: (617) 861-9540
INFORMATION FOR SEQ ID NO: 40:
SEQUENCE CHARACTERISTICS:
LENGTH: 187 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
OS-08-406-030A-30

Query Match          95.6%   Score 829; Pos 4; Length 187;
Post Local Similarity 95.8%, Freqd. No. 6,20+8%;
Matches 159; Conservative 1; Mismatches 6; Indels 0; Gaps 0;

QY      1 MAVAAAGACGASNNQVFLLWTPKPESELYLKKPMRDDEFEFKLVNPKDPAALTY 60
Db      1 L I I T I I I I I I I I I I I I I I I I I I I I I I I I I
        22 MNKNILITGFSSNPFGKLKWNLDSGLTYSKIENPDIIFIKJACTYKIDVALTY 81
QY      61 EMQNIPAFIRQQSSFTCNFTIVNI LANVHQINI KVIPEKIPKPPTPWZAMSSI 120
Db      82 EMQNIPAFIRQSSFTCKNFIVNLANVHQLNKIPIEKLKEKLPISAKLMSSI 141
QY      121 HFRYYGRILLHYIAKFESHCAMTIKVEELTNANVRINRDLGNRN 166
Db      121 HFRYYGRILLHYIAKFESHCAMTIKVEELTNANVRINRDLGNRN 166

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[illegible][illegible]

DB 61 EMLQNTFAIFRQDSSSTGWNFTIVENLLANVYHOINHLKTVIEEKLFEEDFPGKLMSSL 120
QY 121 HLEKRYGRLILHLAKAYSHCAMTVIRVILNFRINELTGYLNN 166
DB 121 HLEKRYGRLILHLAKAYSHCAMTVIRVILNFRINELTGYLNN 166

RESULT 12

US-08-213-448-1
Sequence 1, Application US/08213448
Patent No. 4545723
GENERAL INFORMATION:
APPLICANT: Goetz, Susan E.
APPLICANT: Gate, Richard L.
APPLICANT: Pepinsky, Blake R.
APPLICANT: Chow, Pingchang E.
TITLE OF INVENTION: No. 5545723e1 Mutlains Of IFN-Beta
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSEE: James F. Haley, Jr.
STREET: Fish & Neave, 1251 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10020-1104
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/213-448
FILING DATE:
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Haley Jr., James F.
REGISTRATION NUMBER: 27,794
REFERENCE/DOCKET NUMBER: B179
TELEPHONE: (212) 596-9000
TELEFAX: (212) 596-9090
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHEICAL: NO
ANTI-SENSE: NO
US-08-213-448-1

Query Match 95.0% Score 824, DB 1, Length 166
Best Local Similarity 95.2%, Fnd. No. 1, 9e-82
Matches 158; Conservative 1; Mismatches 7; Indels 0; Gaps 0

QY 1 MAYALALQASSNPGQVQKTLNIGVLEVTTPPQATITPSTFQVQQTATNTTY 60
DB 1 MSYNLGPIQSSNPGQVQKTLNIGVLEVTTPPQATITPSTFQVQQTATNTTY 60
QY 61 EMLQNTFAIFRQDSSSTGWNFTIVENLLANVYHOINHLKTVIEEKLFEEDFPGKLMSSL 120
DB 61 EMLQNTFAIFRQDSSSTGWNFTIVENLLANVYHOINHLKTVIEEKLFEEDFPGKLMSSL 120
QY 121 HLEKRYGRLILHLAKAYSHCAMTVIRVILNFRINELTGYLNN 166
DB 121 HLEKRYGRLILHLAKAYSHCAMTVIRVILNFRINELTGYLNN 166

RESULT 13
US-08-912-768-1
Sequence 1, Application US/08912768

Patent No. 6127332
GENERAL INFORMATION:
APPLICANT: Goetz, Susan E.
APPLICANT: Gate, Richard L.
APPLICANT: Pepinsky, Blake R.
APPLICANT: Chow, Pingchang E.
TITLE OF INVENTION: No. 6127332e1 Mutlains Of IFN-Beta
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
ADDRESSEE: James F. Haley, Jr.
STREET: Fish & Neave, 1251 Avenue of the Americas
CITY: New York
STATE: New York
COUNTRY: USA
ZIP: 10020-1104
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/912-768
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/475,774
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Haley Jr., James F.
REGISTRATION NUMBER: 27,794
REFERENCE/DOCKET NUMBER: B179
TELEPHONE: (212) 596-9000
TELEFAX: (212) 596-9090
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 166 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
HYPOTHEICAL: NO
ANTI-SENSE: NO
US-08-912-768-1

Query Match 95.0% Score 824, DB 3, Length 166
Best Local Similarity 95.2%, Fnd. No. 1, 9e-82
Matches 158; Conservative 1; Mismatches 7; Indels 0; Gaps 0

QY 1 MAYALALQASSNPGQVQKTLNIGVLEVTTPPQATITPSTFQVQQTATNTTY 60
DB 1 MSYNLGPIQSSNPGQVQKTLNIGVLEVTTPPQATITPSTFQVQQTATNTTY 60
QY 61 EMLQNTFAIFRQDSSSTGWNFTIVENLLANVYHOINHLKTVIEEKLFEEDFPGKLMSSL 120
DB 61 EMLQNTFAIFRQDSSSTGWNFTIVENLLANVYHOINHLKTVIEEKLFEEDFPGKLMSSL 120
QY 121 HLEKRYGRLILHLAKAYSHCAMTVIRVILNFRINELTGYLNN 166
DB 121 HLEKRYGRLILHLAKAYSHCAMTVIRVILNFRINELTGYLNN 166

RESULT 14
PCT-US95-03206-1
Sequence 1, Application PCT/US9503206
GENERAL INFORMATION:
APPLICANT: Biogen, Inc.
APPLICANT: Goetz, Susan E.
APPLICANT: Gate, Richard L.
APPLICANT: Pepinsky, Blake R.
APPLICANT: Chow, Pingchang E.
TITLE OF INVENTION: Novel Mutlains Of IFN-Beta
NUMBER OF SEQUENCES: 4


```

CURRENT FILING DATE: 2002-03-19
PRIOR APPLICATION NUMBER: US 60/245,645
PRIOR FILING DATE: 2000-11-02
NUMBER OF SEQ ID NOS: 39
SOFTWARE: FASTSEQ for Windows Version 4.0
SEQ ID NO 2
LENGTH: 187
TYPE: PRT
ORGANISM: Homo sapiens
FEATURE:
NAME FTY:
LOCATION: (1)...(21)
FEATURE:
NAME/KEY: CHAIN
LOCATION: (22) (18*)
US-10-004-201-2

Query Match
Host Local Similarity 95.8%, Score 829, DB 9, Length 187
Matches 159, Conservative 1, Mismatches 6, Gaps 0

1 MAYAALGAIQASSNFGQKTLWQINPPIFYCLEKPMNFEIEELKQLQGFKEKDALITY 60
2 MSYNIIGFIDSSNFGQKTLWQINPPIFYCIKPMNFEIEELKQLQGFKEKDALITY 81
3 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 120
4 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 141
5 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 166
6 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 187

RESULT 6
US-09-919-622A-9
Sequence 9, Application US/09919622A
Patent No. US20020172660A1
GENERAL INFORMATION:
APPLICANT: Chen, Jian
APPLICANT: Godowski, Paul
APPLICANT: Wood, William L.
APPLICANT: Zhang, Dong-Xiao
TITLE OF INVENTION: HUMAN INTERFERON RECEPTOR A TYPE I INTERFERON
FILE REFERENCE: P1224R231 (replacemnt)
CURRENT FILING DATE: 2001-07-30
PRIOR APPLICATION NUMBER: US 09/229122
PRIOR FILING DATE: 1999-03-04
PRIOR APPLICATION NUMBER: 09/229122
PRIOR FILING DATE: 1999-12-04
NUMBER OF SEQ ID NOS: 13
SEQ ID NO 9
LENGTH: 187
TYPE: PRT
ORGANISM: Homo sapiens
US-09-919-622A-9

Query Match
Host Local Similarity 95.8%, Score 829, DB 9, Length 187
Matches 159, Conservative 1, Mismatches 6, Gaps 0

1 MAYAALGAIQASSNFGQKTLWQINPPIFYCLEKPMNFEIEELKQLQGFKEKDALITY 60
2 MSYNIIGFIDSSNFGQKTLWQINPPIFYCIKPMNFEIEELKQLQGFKEKDALITY 81
3 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 120
4 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 141
5 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 166
6 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 187

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RESULT 7
US-09-788-552-1
Sequence 1, Application US/09788552
Patent No. US20020076349A1
GENERAL INFORMATION:
APPLICANT: Braun, Serge
TITLE OF INVENTION: Treatment of Immune Diseases
FILE REFERENCE: 032751-053
SEQUENT MATERIAL: US/09788552
CURRENT FILING DATE: 2001-08-23
PRIOR APPLICATION NUMBER: EP 00 44 0053.7
PRIOR FILING DATE: 2000-02-23
FILE REFERENCE: 032746-089
PRIOR APPLICATION NUMBER: US 09/246,089
PRIOR FILING DATE: 2000-11-07
NUMBER OF SEQ ID NOS: 3
SOFTWARE: PatentIn version 3.1
SEQ ID NO 1
LENGTH: 187
TYPE: PRT
ORGANISM: Homo sapiens
US-09-788-552-1

Query Match
Host Local Similarity 95.8%, Score 829, DB 10, Length 187
Matches 159, Conservative 1, Mismatches 6, Gaps 0

1 MAYAALGAIQASSNFGQKTLWQINPPIFYCIKPMNFEIEELKQLQGFKEKDALITY 60
2 MSYNIIGFIDSSNFGQKTLWQINPPIFYCIKPMNFEIEELKQLQGFKEKDALITY 81
3 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 120
4 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 141
5 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 166
6 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 187

RESULT 8
US-09-832-659-2
Sequence 2, Application US/09842659
Patent No. US20020155547A1
GENERAL INFORMATION:
APPLICANT: BIOGEN, INC.
TITLE OF INVENTION: Interferon Beta Fusion Proteins and Uses
FILE REFERENCE: A06467580
SEQUENT MATERIAL: US/09842659
CURRENT FILING DATE: 2001-04-11
PRIOR APPLICATION NUMBER: 60/720,227
PRIOR FILING DATE: 1999-02-16
PRIOR APPLICATION NUMBER: 60/710,491
PRIOR FILING DATE: 1998-10-16
NUMBER OF SEQ ID NOS: 44
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 2
LENGTH: 399
TYPE: PRT
ORGANISM: murine
US-09-832-659-2

Query Match
Host Local Similarity 95.8%, Score 829, DB 9, Length 399
Matches 159, Conservative 1, Mismatches 6, Gaps 0

1 MAYAALGAIQASSNFGQKTLWQINPPIFYCIKPMNFEIEELKQLQGFKEKDALITY 60
2 MSYNIIGFIDSSNFGQKTLWQINPPIFYCIKPMNFEIEELKQLQGFKEKDALITY 81
3 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 120
4 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 141
5 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 166
6 EMLQNTFAIFPGSSSTGWNFTIVENLAVYHQINHLKTVLEKLEKEDFTKGLMSL 187

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1 : NUMBER OF SEQ ID NOS: 44
2 : SOFTWARE: PatentIn Ver. 2.0
3 : SEQ ID NO: 42
4 : LENGTH: 418
5 : TYPE: CDS
6 : ORGANISM: Homo sapiens
7 : OS=09-0832-059-42

```

Query Match 94.6%; Score 820; DB 9; Length 418;
Best Local Similarity 95.2%; Pred. No. 4.4e-75;
Matches 158; Conservative 1; Mismatches 7; Indels 0; Gaps 0;

QY	1	MYAANALASZSNJCNJLJWJZJNLEJYJLJKNJNNEJLEJLJOLJGJYKNSJUALJLY	90
	1		
Dh	25	MSYNNLJGJSSNNJQJLJLMJNLSJLEJLJLNJNNEJLEJLJOLJGJYKNSJUALJLY	84
QY	61	EMJLJNFIJFJODJSSJTNJMNJFJVENJLJANVJHJQJNJJHJKTJYJFJLJEFJNFTJGJALJMSJL	120
Dh	85	EMJLJNFIJFJODJSSJTNJMNJFJVENJLJANVJHJQJNJJHJKTJYJFJLJEFJNFTJGJALJMSJL	144
QY	121	HLJRYJYJYJLJLYLJAKJESJHJANTJYJRVJZJLJRNJYJNLEJLJGJYJEN	166
Dh	145	HLJRYJYJYJLJLYLJAKJESJHJANTJYJRVJZJLJRNJYJNLEJLJGJYJEN	190

RESULT 13-09-94
 08-09-832-659-44
 : Sequence 44, Application 08/09832659
 : Patent No. 0820020155547A1
 : GENERAL INFORMATION:
 : APPLICANT: HUGGEN, INC.
 : TITLE OF INVENTION: Interferon-Beta Fusion Proteins and Uses
 : FILE REFERENCE: A064PCT90
 : CURRENT APPLICATION NUMBER: 08-09-832-659-44
 : CURRENT FILING DATE: 2001-04-11
 : PRIOR APPLICATION NUMBER: 60/120,237
 : PRIOR FILING DATE: 1999-02-16
 : PRIOR APPLICATION NUMBER: 60/104,491
 : PRIOR FILING DATE: 1998-10-16
 : NUMBER OF SEQ ID NOS: 44
 : SOFTWARE: PatentIn Ver. 2.0
 : SEQ ID No 44
 : LENGTH: 423
 :
 : TYPE: PRT
 : ORGANISM: Homo sapiens
 : 85-09-832-659-44

Query Match	94.68;	Score 820;	DB 9;	Length 423;
Best Local Similarity	95.28;	Pred. No. 4.5e-75;		
Matches 108; Conservative	1;	Mismatches 7;	Indels 0;	Gaps 0;

QY	1	MAVAAL	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
QY	1	MAVAAL	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Db	25	MSYNLL	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																								
QY	61	EMJUNIFAI	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150										
Db	85	EMJUNIFAI	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150																																		
QY	121	HRFVYV	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164</																																																								

REF ID: A1
 US-09-725-433-4
 Sequence 4, Application US/09725434
 Patent No. US20020068362A.
 GENERAL INFORMATION:
 APPLICANT: NO. US20020068362A1arts AG
 TITLE OF INVENTION: Increased transgene
 FILE OF INVENTION: attachment region
 FILE REFERENCE: 4-309218/SYS
 expression in retroviral vectors having a sec

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: CURRENT APPLICATION NUMBER: 02/09/725,433
: CURRENT FILING DATE: 2000-11-29
: NUMBER OF SEQ ID NOS: 7
: SOFTWARE: patentIn version 3.1

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Query Match	91.08;	Score 789;	DB 10;	Length 187;
Post local Similarity	92.28;	Prod M ₁	2 (2.72);	
Matches 153;	Conservative	2;	Mismatches 11;	Indels 0;
			Gaps	

QY	1	MAVAALGAOASSNNOCOKILIMOWINSETEJCKDPENNPPEHFOLOOFOYOKHNAALITY	60
	1	1	
Db	22	MSYNLUGPLOSRRNNOCOKILIMOWINPEEGLKEDPENNEPEHFOLOOFOYOKHNAALITY	81
QY	61	EMIONFAFHODSSSTANNETJVENILANVHOINHLKTVLEKKEKHEHFOKALMSSTL	120
	1	1	
Db	82	EMIONFAFHODSSSTANNETJVENILANVHOINHLKTVLEKKEHFOKALMSSTL	141
QY	121	HLRPYVGPULYALKAFEXSHCAWTVENITLATTIVETNHOLOLYUN	166
	1	1	
Db	142	HLRPYVGPULYALKAFEXSHCAWTVENITLATTIVETNHOLOLYUN	187

```

RESULT 15
US-09-832-658-28
; Sequence: 28, Application US2009022558
; Publication NO. US20030021765A1
; GENERAL INFORMATION:
; APPLICANT: Biogen, INC
; APPLICANT: Pepinsky, Blake
; APPLICANT: Kunkel, Laura
; APPLICANT: Brickelmaier, Margot
; APPLICANT: Whitley, Adrian
; APPLICANT: Hochman, Paula
; TITLE OF INVENTION: Polymer Conjugates of Interferon Beta-1a
; TITLE OF INVENTION: and Uses
; FILE REFERENCE: A065PCT
; CURRENT APPLICATION NUMBER: 09/09,832,658
; CURRENT FILING DATE: 2001-04-11
; PRIOR APPLICATION NUMBER: 63/704,572
; PRIOR FILING DATE: 1998-10-16
; PRIOR APPLICATION NUMBER: 60/120,161
; PRIOR FILING DATE: 1999-02-16
; NUMBER OF SEQ ID NOS: 29
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 28
; LENGTH: 166
; TYPE: PR1
; ORGANISM: human
; US-09-832-658-28

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Query Match	89.28	Score 774	DB 9	Length 166
Best Local Similarity	91.08	Prod. No. 7.66-77		
Matches 151	Conservative	2	Mismatches 13	Indels 0
			Gaps 0	
QY	1	MAVAALGALGASSNPGCCGCTLWLNMTAEVYLNQPMNFIHFEELKQVGYKKAATATY	60	
	1	1	1	1
Db	1	MSNLNLGFLQPSNSNOQKTLWQNLNADLYSLKRAALATATAEKQVQKQKDAATATY	60	
QY	61	PMQNTFAFPEADSGSTWMTFTTAEVANYTEINRFLVALLKKAELQDAAALMSTSL	120	
	1	1	1	1
Db	61	PMQNTFAFPEADSGSTWMTFTTAEVANYTEINRFLVALLKKAELQDAAALMSTSL	120	
QY	121	HKRYKRYKRLHLTKAKKLSHCAMFLVRVHLKNAFLYFIRKLGLGYLRN	166	
	1	1	1	1
Db	121	HKRYKRYGRLHLTKAKKAAWMTLVRELLKRNFLYFIRKLGLGYLRN	166	

Tue May 6 12:42:37 2003

File Time: 14.1.2003

us-09-832-658a-26.rapb

Page 6

XX	Blood Scleroses:
XX	Synthetic:
XX	Kow
XX	Misc-difference 98 /note: "Wild type His is substituted by Ala"
XX	W620874472 A.L.
XX	47-APR-2000.
XX	15-OCT-1999: 99W0-0524200.
XX	16-OCT-1998: 98DS-0104491.
XX	16-FEB-1999: 99DS-0120237.
XX	(BRL)) BIOGEN INC.
XX	Whitby A. Runkel L. Brit-Kelman M. Hochman P.
XX	WPI: 2000-030654/29.
XX	Fusion proteins comprising interferon beta Ia useful for inhibiting
XX	antiproliferosis.
XX	Example 1: Page 7; 82PP: Final Pub.
XX	The patent discloses fusion proteins comprising glycosylated
XX	interferon-beta (IFN beta) especially IFN beta-LA linker groups and
XX	non-IFN-beta proteins, especially an immunoglobulin (Ig) protein. The
XX	fusica protein is useful for inhibiting angiogenesis in a patient
XX	It may also be used to treat multiple sclerosis, fibrosis, inflammatory
XX	and autoimmune diseases, cancers, hepatitis and viral infection
XX	characterised by neovascularisation. The present sequence is
XX	a human interferon-beta alanine substituted mutant H93A.
XX	The mutant was analysed in antiviral assays to assess the effects
XX	of mutating the histidines which chelate zinc in the crystal structure
XX	dimer. The His mutants retained wild type activity suggesting that
XX	Zinc-mediated host targeting is not important for IFN beta activity.
XX	Note: The Present sequence is not shown in the specification but is
XX	derived from wild type human IFN beta sequence found in page 36
XX	(AAV70877).
XX	Sequence: 166 AA:
XX	Query Match: 98.0% Score 862; DB 21; Length 166;
XX	Best Local Similarity 99.4% Prod No. 1,8e-70;
XX	Matches 165; Constructive 0; Mismatches 1; Indels 0; Gaps 0.
YY	1 MSYNLAEFGSSNGSGTITWLNAGSYFVLSKGMNFVLEHLENQZGFEHATITY 60
YY	1 MSYNTLGHGGSSNGSGTITWLNAGSYFVLEKPMNFPEEPFGDQGYEDALITY 60
YY	1 EMGNMFAAFPRDSSSTIMDTIVENLVANVHQINHLKTVELPEREKDFRGALMSLT 120
YY	61 EMLNMFAAFPRDSSSTIMDLTVENLVANVAQVINHLKTVEELFKIDPFGALMSLT 120
YY	121 HFFPYVPVTHFLKAKESYSWTMTVENVTHLPMPFINLLTOYLIN 166
YY	121 HFFPYSPVTHFLKAKESHSAWMTVPEVLHPNPFINLLTOYLIN 166
ZZ	RESIDUE 1 4
ZZ	AAV708708
ZZ	AAV708708 standard. Protein: 166 AA.
ZZ	AAV708708:

XX	41-JUN-2000 (first entry)	
TE	human interferon-beta alanine substituted mutant (h7A).	
XX		
KW	Human, Interferon beta, IFN beta, Immunoglobulin fusion protein; mutant;	
KW	antagonists; anticytokine; anti-inflammation; immunopressive;	
KW	cysticosis; viral; hepatocellular carcinoma; thrombosis;	
KW	multiple sclerosis; inflammatory disease; autoimmune disease; cancer;	
KR	Protein; Viral; Infect; Cancer; Virus; IFN-beta-1a	
CS	Homo sapiens.	
OS	Synthetic.	
XX		
EH	Key	Location/Qualifiers
FI	Misc-difference 97	Note: "Wild type His is substituted by Ala"
PT		
XX		
FN	W020002447.2 A2.	
PD	27-APR 2000.	
XX		
CF	15-OCT 1999.	99W00524.200
XX		
PR	16-OCT-1999;	98US-0104491.
PR	16-FEB-1999;	99US-0120237
XX		
PA	(Bio)) BIOGEN INC.	
PI	Whitty A, Bankel L, Brickenator M, Footman P.	
XX	Wt1, 2000 439654/29.	
XX		
ET	Fusion proteins comprising interferon-beta (a) useful for inhibition	
PT	anticoagesis	
XX		
PS	Example 1: Page 72 82pp. English.	
XX		
CC	The patent discloses fusion proteins comprising glycosylated	
CC	interferon-beta (IFN-beta) especially IFN-beta-1a, fibro groups and	
CC	non-IFN-beta fecting, especially an immunoglobulin (Ig) protein. The	
CC	fusion protein is useful for inhibiting anticoagenses in a patient.	
CC	It may also be used to treat multiple sclerosis, fibrosis, inflammatory	
CC	and autoimmune diseases, cancers, hepatitis and viral infection	
CC	that are caused by neoplastic infection. The present sequence is	
CC	a human interferon beta alanine substituted mutant (h7A).	
CC	The mutant was analysed in antiviral assays to assess the effects	
CC	of mutation the histidines which chelate zinc in the crystal structure	
CC	dimer. The His mutants related wild type actively suppressing that	
CC	zinc-mediated dimer formation is not important for IFN beta activity.	
CC	Note: The present sequence is not shown in the specification but is	
CC	derived from wild type human IFN beta sequence found in patent	
CC	(AAV70871).	
XX		
XX	Sequence 166 AA:	
Query Match	98-98: Score 8627 186 Z1: Length 166:	
Best Local Similarity	99-49: Prod: No: 186 70:	
Matches 165: Conservative 0: Mismatches 1: Indels 0: Gaps 0:		
07	1 EYVNLGQGECHQCTFLANGLRELEYTETSMGQGLLEKAGSLKELAAVITY 60	
07	1 EYVNLGQGECHQCTFLANGLRELEYTETSMGQGLLEKAGSLKELAAVITY 60	
0b	1 MSYNLGLQGESNPGQLEKFLWLNRELEYTETSMGQGLLEKAGSLKELAAVITY 60	
07	61 DMLGNHAFRQDSSTWMLTVNLNANYHJNDHKLVEKLEKEDTQDMSNL 120	
0b	61 EMLGNHAFRQDSSTWMLTVNLNANYHJNDHKLVEKLEKEDTQDMSNL 120	
07	121 HEFYVYCELTFLKAEVYDAMVYVYLLFHYVYCEVYEN 166	
0b	121 HEFYVYCELTFLKAEVYDAMVYVYLLFHYVYCEVYEN 166	
07	121 HEKYVYCELTFLKAEVYDAMVYVYLLFHYVYCEVYEN 166	

CC The sequence encodes a synthetic interferon-beta which has
 CC increased biological activity compared to natural IFN-beta, and
 CC which is more effective in the treatment of viral or neoplastic
 CC diseases or immunosuppressed or immunodeficient conditions.
 XX

Sequence 166 AA;

Query Match 98.5%; Score 859; DB 6; Length 166;
 Best Local Similarity 98.8%; Prod. No. 3.5e-70;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 MSYNLAFTRGSSNFGQKILWLNKLEKYLKQKNNFDPPEFPGQGFQFAATLY 60
 DB 1 MSYNLIGLQSSNFGQKILWLNKLEKYLKQKNNFDPPEFPGQGFQFAATLY 60
 QY 61 EMLQNFALFRQSSSTGWNNTIVENLNAVYHQINHLATVEEKLEKEDPTGKLMSS 120
 DB 61 EMLQNFALFRQSSSTGWNNTIVENLNAVYHQINHLATVEEKLEKEDPTGKLMSS 120
 QY 121 HLRKYYGRLHYLKAKEYSHCAWTVEELPRFPIINELTYLEN 156
 DB 121 HLRKYYGRLHYLKAKEYSHCAWTVEELPRFPIINELTYLEN 156

RESULT 11

AAp61071 standard; Protein: 166 AA.

AAp61071:

03-OCT-2002 (update3)
 28-MAY-1991 (first entry)

oxidation resistant mutin of Interferon-beta.

IL-2; IFN beta; colony stimulating factor; GSF-1; tPA; NGF.

Homo sapiens.

Key: Location/Qualifiers

Misc-difference 1..6 /note= "May be N terminal truncated or absent"

Misc-difference 17 /note= "May be any conservative AA"

Misc-difference 36 /note= "May be any conservative AA"

Misc-difference 62 /note= "May be any conservative AA"

Misc-difference 117 /note= "May be any conservative AA"

AA08652451-A.

31-JUL-1986.

17-JAN-1986; 86AU-0052451.

17-DEC-1985; 85US-0810656.

18-JAN-1985; 85US-0692596.

05-NOV-1986; 86AU-0064846.

05-AUG-1986; 86US-0893186.

(CPTU) GENUS CORP.

Korbas KE, Haldenbeck RE, Innis MA;

WP1; 1986-239075/37.

oxidn. resistant mutin(s) - prepd. by replacing
 oxidn. susceptible methionine with conservative aminoacid

Claim 5; Page 50; 50pp; English.

CC Modified peptide has residues susceptible to chloramine T and
 CC peroxide oxidation replaced with conservative AAs. Mutin is thus
 CC resistant to oxidation. Other proteins which may be similarly
 CC rendered resistant include tissue plasminogen activator, colony
 CC stimulating factor and human growth factor.
 CC (Updated on 03-OCT-2002 to add missing 08 field.)
 XX

Sequence 166 AA;

Query Match 98.5%; Score 859; DB 7; Length 166;
 Best Local Similarity 98.8%; Prod. No. 3.5e-70;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

QY 1 MSYNLAFTRGSSNFGQKILWLNKLEKYLKQKNNFDPPEFPGQGFQFAATLY 60
 DB 1 MSYNLIGLQSSNFGQKILWLNKLEKYLKQKNNFDPPEFPGQGFQFAATLY 60
 QY 61 EMLQNFALFRQSSSTGWNNTIVENLNAVYHQINHLATVEEKLEKEDPTGKLMSS 120
 DB 61 EMLQNFALFRQSSSTGWNNTIVENLNAVYHQINHLATVEEKLEKEDPTGKLMSS 120
 QY 121 HLRKYYGRLHYLKAKEYSHCAWTVEELPRFPIINELTYLEN 166
 DB 121 HLRKYYGRLHYLKAKEYSHCAWTVEELPRFPIINELTYLEN 166

RESULT 12

AAp70296 standard; Protein: 166 AA.

AAp70296:

07-JUN-1991 (first entry)

Sequence of Interferon-beta.

Antiviral; antiproliferative agent.

Homo sapiens.

EP237019-A.

16-SEP-1987.

10-MAR-1987; 87EP-0103406.

14-MAR-1986; 86JP-0054650.

26-DEC-1986; 86JP-0308693.

(TOFA) TOFAY IND INC.

Tanaka T, Kawano G, Sawada R;

WP1; 1987-258309/37.

Conjugates of interferon(s)-beta and -gamma - useful as antivirals
 and anti-cell proliferatives with broader spectrum of activity
 and other economically by recombinant DNA procedures

Claim 7; p35; 52pp; English.

CC The inventors claim an interferon conjugate wherein a C-terminal of
 CC the region exhibiting biological activities of interferon-beta has
 CC been linked to an N-terminal of the region exhibiting biological
 CC activities of interferon-gamma. The antiviral activity of the
 CC conjugate was tested using FL cells-sindbis virus system according
 CC to the CPE 50 inhibition method. Antiviral activity ranged from
 CC 200 u/ml to 14500 U/ml.

Sequence 166 AA;

Query Match 98.5%; Score 859; DB 8; Length 166;
 Best Local Similarity 98.8%; Prod. No. 3.5e-70;

Matches 164 Conserved 0 Mismatches 27 Indels 0 Gaps 0

1 MGVNLTGKSSNPGVETLWETNLEFVYKIPNNKTPKPKVQVQVCFVMAALITY 60
 11 MGVNLTGKSSNPGVETLWETNLEFVYKIPNNKTPKPKVQVQVCFVMAALITY 60

61 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120
 111 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120

61 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120
 111 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120

61 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120
 111 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120

61 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120
 111 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120

RESULT 14
 AAV84964
 10 AAV84964 at standard: protein: 166 AA.

AAV84964

29 JAN 1994 (first entry)

Human interferon beta protein.

Interferon beta: variant: human; modification: treatment: screening;
 multiple sclerosis; measurement: water solubility.

Human interferon.

06/07/2004 AT.

29 OCT 1994

28 APR 1997 97HE-1017864.

28 APR 1997 97HE-1017864.

(FRAN) PHANHOEFER CHS FERNBERGER ANGEWANDTEN.

OTTO B. Schuchter-Fresenius G. Waschbaur G.

WPI: 1998 969784/49.

New mutated recombinant human interferon-beta protein contains

hydroxyl amino acid substitutions to improve water solubility -

used e.g. in vitro screening assays, to measure interferon levels

and to treat multiple sclerosis

(disclaimer: Fig 1; 1pp; German).

This sequence represents a native human recombinant interferon-beta

protein which is mutated into an amino acid having at least one hydroxy

group substituted for at least one of Leu55, Phe58, Phe59, Phe50,

Leu106, Phe111, Phe116, Phe120 and Phe126, such polypeptides can be used in

modulators e.g. for treatment multiple sclerosis, for in vitro screening

assays and for measurement of interferon levels, the mutated protein is

more water soluble than recombinant wild type human interferon-beta.

Sequence 166 AA:

2907 Match 96.7% Score 859; DB 10; Length 166;
 Post local similarity: 96.8%; Prod. No. 5,60-70;
 Matches 164 Conserved 0 Mismatches 27 Indels 0 Gaps 0

61 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120
 111 EMGNLFAIFKQSSSTAMNLLVNLANVYHJQNMNVLVFNLANHIFKQALMSNL 120

RESULT 14

AAV84964

AAV84964 standard: Protein: 166 AA.

AAV84963

21 AUG 2000 (first entry)

Alanine mutant of human interferon beta la protein.

Interferon beta la: IFN-beta la; polymer: polyalkylene glycol; tumor;

cancer; autoimmune condition: fibrosis; lupus; multiple sclerosis;

viral disease; autoimmune disease.

Synthetic.

Human sapiens.

Key:

Misc-difference 139

Misc-difference 140

Misc-difference 140

Misc-difference 140

Misc-difference 140

Misc-difference 140

Misc-difference 140

Misc-difference 140

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Misc-difference 140

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Misc-difference 140

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121. HIKKUYOCHI, H. *FAKTYCHNOE OBLUCHENIYE I IONIZACIYA* 1959

Submitted for publication, April 11, 1984.

```

1 Publication No. US2003014192A1
2
3 GENERAL INFORMATION
4
5 APPLICANT: COUNTEL, Patrick C.
6
7 APPLICANT: Grant, Francis J.
8
9 APPLICANT: Ryan, Mark W
10
11 APPLICANT: Kissvogel, Wayne
12
13 TITLE OF INVENTION: Infectious Epsilon
14
15 FILE REFERENCE: 98/4601
16
17 CURRENT APPLICATION NUMBER: US2003/971,844
18
19 PRIORITY FILING DATE: 2001/19/04
20
21 PRIOR APPL I VAL IN NUMBER: 04/101,012
22
23 PRIOR FILING DATE: 1998/09/16
24
25 PRIOR APPL I VAL IN NUMBER: 60/118,578
26
27 PRIOR FILING DATE: 1999/02/05
28
29 PRIOR APPL I VAL IN NUMBER: 60/142,765
30
31 PRIOR FILING DATE: 1999/07/08
32
33 PRIOR APPL I VAL IN NUMBER: 09/997,992
34
35 PRIOR FILING DATE: 1999/09/16
36
37 NUMBER OF SEQ ID NOS: 43
38
39 SOFTWARE PACKAGE FOR WINDOWS Version 4.0
40
41 FILE NO.:
42
43 LENGTH: 1.6K
44
45 TYPE: J91
46
47 ORGANISM: Homo sapiens
48
49 SEQ ID NO: 1

```

Query Match	98.5%;	Score	859;	DB	9;	Length	166;
Post Local Similarity	98.8%;	Prod. No.	5,26-79;				
Matches	167;	Conservative	0;	Mismatches	2;	Indels	

07	1	MENYNYN GIBSSNNGYVORWALNINBIVATKIPNNYFOTPEFKKLOQWPKKEDNATITY	60
146	1	MENYNYN GIBSSNNGYVORWALNINBIVATKIPNNYFOTPEFKKLOQWPKKEDNATITY	60
07	61	EMUNYFALFPROSSITWNNIYENNIJAVNYUINERIVFENKLEKTEFPROKMSIT	120
146	61	EMUNYFALFPROSSITWNNIYENNIJAVNYUINERIVFENKLEKTEFPROKMSIT	120
07	121	HELFVYVYTHETLAKESYDADIVVYVETLNNYKLEKTEFPROKMSIT	146
146	121	HELFVYVYTHETLAKESYDADIVVYVETLNNYKLEKTEFPROKMSIT	146

GENERAL INFORMATION:

1 APPLICANT: BIOGEN, INC.
2 TITLE OF INVENTION: INTERFERON BETA Fusion Proteins and Uses
3 FILE REPRESENTATIVE: ADG/ELISB
4 CURRENT APPLICATION NUMBER: US/09/0842,659
5 CURRENT FILING DATE: 2001-04-11
6 PRIOR APPLICATION NUMBER: 60/210,247
7 PRIOR FILING DATE: 1999-02-16
8 PRIOR APPLICATION NUMBER: 60/104,491
9 PRIOR FILING DATE: 1998-10-16
10 NUMBER OF SEQ. ID NOS: 44
11 SOFTWARE: Patonsoft Ver. 2.0
12 SEQ. ID NO. 4
13 LENGTH: 108
14 TYPE: PRT
15 ORGANISM: murine
16 CDS: 09-0842,659 4

Country	Year	Population	Population Density	Forest Land	Forest Land as % of Total Land
Algeria	1980	10,000,000	100/km ²	1,000,000 ha	10%
Algeria	1985	11,000,000	110/km ²	1,100,000 ha	11%
Algeria	1990	12,000,000	120/km ²	1,200,000 ha	12%
Algeria	1995	13,000,000	130/km ²	1,300,000 ha	13%
Algeria	2000	14,000,000	140/km ²	1,400,000 ha	14%
Algeria	2005	15,000,000	150/km ²	1,500,000 ha	15%
Algeria	2010	16,000,000	160/km ²	1,600,000 ha	16%
Algeria	2015	17,000,000	170/km ²	1,700,000 ha	17%
Algeria	2020	18,000,000	180/km ²	1,800,000 ha	18%
Algeria	2025	19,000,000	190/km ²	1,900,000 ha	19%
Algeria	2030	20,000,000	200/km ²	2,000,000 ha	20%
Algeria	2035	21,000,000	210/km ²	2,100,000 ha	21%
Algeria	2040	22,000,000	220/km ²	2,200,000 ha	22%
Algeria	2045	23,000,000	230/km ²	2,300,000 ha	23%
Algeria	2050	24,000,000	240/km ²	2,400,000 ha	24%
Algeria	2055	25,000,000	250/km ²	2,500,000 ha	25%
Algeria	2060	26,000,000	260/km ²	2,600,000 ha	26%
Algeria	2065	27,000,000	270/km ²	2,700,000 ha	27%
Algeria	2070	28,000,000	280/km ²	2,800,000 ha	28%
Algeria	2075	29,000,000	290/km ²	2,900,000 ha	29%
Algeria	2080	30,000,000	300/km ²	3,000,000 ha	30%
Algeria	2085	31,000,000	310/km ²	3,100,000 ha	31%
Algeria	2090	32,000,000	320/km ²	3,200,000 ha	32%
Algeria	2095	33,000,000	330/km ²	3,300,000 ha	33%
Algeria	2100	34,000,000	340/km ²	3,400,000 ha	34%
Algeria	2105	35,000,000	350/km ²	3,500,000 ha	35%
Algeria	2110	36,000,000	360/km ²	3,600,000 ha	36%
Algeria	2115	37,000,000	370/km ²	3,700,000 ha	37%
Algeria	2120	38,000,000	380/km ²	3,800,000 ha	38%
Algeria	2125	39,000,000	390/km ²	3,900,000 ha	39%
Algeria	2130	40,000,000	400/km ²	4,000,000 ha	40%
Algeria	2135	41,000,000	410/km ²	4,100,000 ha	41%
Algeria	2140	42,000,000	420/km ²	4,200,000 ha	42%
Algeria	2145	43,000,000	430/km ²	4,300,000 ha	43%
Algeria	2150	44,000,000	440/km ²	4,400,000 ha	44%
Algeria	2155	45,000,000	450/km ²	4,500,000 ha	45%
Algeria	2160	46,000,000	460/km ²	4,600,000 ha	46%
Algeria	2165	47,000,000	470/km ²	4,700,000 ha	47%
Algeria	2170	48,000,000	480/km ²	4,800,000 ha	48%
Algeria	2175	49,000,000	490/km ²	4,900,000 ha	49%
Algeria	2180	50,000,000	500/km ²	5,000,000 ha	50%
Algeria	2185	51,000,000	510/km ²	5,100,000 ha	51%
Algeria	2190	52,000,000	520/km ²	5,200,000 ha	52%
Algeria	2195	53,000,000	530/km ²	5,300,000 ha	53%
Algeria	2200	54,000,000	540/km ²	5,400,000 ha	54%
Algeria	2205	55,000,000	550/km ²	5,500,000 ha	55%
Algeria	2210	56,000,000	560/km ²	5,600,000 ha	56%
Algeria	2215	57,000,000	570/km ²	5,700,000 ha	57%
Algeria	2220	58,000,000			

Abstracts 164, Conservation 5, Microsites 2, Index 0, Gaps 0

[illegible]

RESULT 4
US-09-832-658-2

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? Sequence #: APPLICATION USZ09876268
? Publication No.: US2004002176A1
? GENERAL INFORMATION:
? APPLICANT: BIOGEN, INC.
? APPLICANT: Popluskay, Blake
? APPLICANT: Punkel, Laura
? APPLICANT: Biotechnology, Margaret
? APPLICANT: Whittity, Adrian
? APPLICANT: Hochman, Paula
? TITLE OF INVENTION: Polymer Conjugates of Interleukin beta 1a
? TITLE OF INVENTION: and Uses
? FILE REFERENCE: A0660603
? CURRENT APPLICATION NUMBER: 05/397842, 658
? CURRENT FILING DATE: 2001-04-11
? PRIOR APPLICATION NUMBER: 60/104,572
? PRIOR FILING DATE: 1998-10-16
? PRIORITY APPLICATION NUMBER: 60/120,161
? PRIOR FILING DATE: 1999-02-16
? NUMBER OF SEQ ID NOS: 29
? SOFTWARE: FastSeq for Windows Version 4.0
? SEQ ID NO 2
? LENGTH: 183
? TYPE: PRT
? ORGANISM: murine
? OS-09-832-658-2

```

Query Match	98.58;	Score 8599;	DB 9;	Length 184;
Best Local Similarity	98.88;	Prod. No. 5,36-79;		
Matches 164;	Conservative	0;	Mismatches 2;	Indels 0;
				Gaps 0;

[illegible]

RESULTS

US 10,004,201-2
Sequence 2, Application US/10004201
Patent No. US20020169290A1
GENERAL INFORMATION

1 OPERATOR: J. GORTHOES, Claus
2 APPLICANT: GORTHOES, Claus
3 APPLICANT: ANDERSEN, Kim Vilhelm
4 APPLICANT: RASMUSSEN, Poul Haad
5 APPLICANT: PEDERSEN, Anders Hjalbert
6 TITLE OF INVENTION: NEW MULTIMERIC INTERFERON BETA
7 TITLE OF INVENTION: POLYPEPTIDES
8
9 FILE REFERENCE: 02205210
10 CURRENT APPLICATION NUMBER: 8977 7004, 201

[illegible]

Q7	MSYNLLPLOSRSNFOVKIMWLNINSLYTLKRNHNPFEKKLPHRTALITY	60
D8	MSNNLPPIORSRNFQKIIMQIMRIEYTKRHANPNIPFELKIDQLFKIKALITY	60
E9	EMGNLFATLRGSGNTGWETVVEHLAHTVGLNLKLVNLEPRERITAMSSS	120

14 61 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 120
 QY 121 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 166
 DB 121 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 166

RESULT 9
 US-09-927-850-2
 ? Sequence 7, Application US/99/927850
 ? Patent No. US20020157137A1
 ? GENERAL INFORMATION:
 ? APPLICANT: Webster, Andrew
 ? APPLICANT: Web, Michael
 ? APPLICANT: K-117, Michael
 ? TITLE OF INVENTION: Interaction Like Molecules and Uses Thereof
 ? FILE REFERENCE: 99/472-F
 ? CURRENT APPLICATION NUMBER: US/99/927,850
 ? CURRENT FILING DATE: 2001-08-10
 ? PRIOR APPLICATION NUMBER: 99/724,860
 ? PRIOR FILING DATE: 2000-11-28
 ? PRIOR APPLICATION NUMBER: 60/169,720
 ? PRIOR FILING DATE: 1999-12-04
 ? NUMBER OF SEQ ID NOS: 49
 ? SOFTWARE: Patent In Vet., 2.0
 ? SEQ ID NO: 7
 ? LENGTH: 167
 ? TYPE: PRT
 ? ORGANISM: Homo sapiens
 US-09-927-850-2

Query Match 98.2% Score 850; DB 10; Length 167;
 Best Local Similarity 98.2% Prod. No. 1,40-78;
 Matches 163; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 US-09-927-850-2

QY 1 MSYNLAFGLQSSNPOGOKLIMQINRLECYLKMSPHDPPEKLOQOPKREDAALTY 60
 DB 22 MSYNLAFGLQSSNPOGOKLIMQINRLECYLKMSPHDPPEKLOQOPKREDAALTY 81
 QY 61 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 120
 DB 82 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 141
 QY 121 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 166
 DB 142 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 187

RESULT 10
 US-09-788-552-2
 ? Sequence 4, Application US/99/788552
 ? Patent No. US20020076990A1
 ? GENERAL INFORMATION:
 ? APPLICANT: Biogen, Inc.
 ? TITLE OF INVENTION: Treatment of Immune Diseases
 ? FILE REFERENCE: 03/251,953
 ? CURRENT APPLICATION NUMBER: US/99/788,552
 ? CURRENT FILING DATE: 2001-08-23
 ? PRIOR APPLICATION NUMBER: EP-00-44-00547
 ? PRIOR FILING DATE: 2000-02-23
 ? PRIOR APPLICATION NUMBER: US-90/246,089
 ? PRIOR FILING DATE: 2000-11-07
 ? NUMBER OF SEQ ID NOS: 4
 ? SOFTWARE: Patent In version 4.1
 ? SEQ ID NO: 2
 ? LENGTH: 166
 ? TYPE: PRT
 ? ORGANISM: Homo sapiens
 US-09-788-552-2

Query Match 97.7% Score 852; DB 10; Length 166;
 Best Local Similarity 98.2% Prod. No. 2,40-78;
 Matches 163; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 MSYNLAFGLQSSNPOGOKLIMQINRLECYLKMSPHDPPEKLOQOPKREDAALTY 60
 DB 1 MSYNLAFGLQSSNPOGOKLIMQINRLECYLKMSPHDPPEKLOQOPKREDAALTY 60
 QY 61 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 120
 DB 61 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 120
 QY 121 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 166
 DB 121 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 166

RESULT 11
 US-09-832-659-42
 ? Sequence 42, Application US/09842659
 ? Patent No. US2002015547A1
 ? GENERAL INFORMATION:
 ? APPLICANT: BIOGEN, INC.
 ? TITLE OF INVENTION: Interaction Like Fusion Proteins and Uses
 ? FILE REFERENCE: A064PCTSD
 ? CURRENT APPLICATION NUMBER: US/99/832,659
 ? CURRENT FILING DATE: 2001-04-11
 ? PRIOR APPLICATION NUMBER: 60/120,237
 ? PRIOR FILING DATE: 1999-02-16
 ? PRIOR APPLICATION NUMBER: 60/104,491
 ? PRIOR FILING DATE: 1998-10-16
 ? NUMBER OF SEQ ID NOS: 44
 ? SOFTWARE: Patent In Vet., 2.0
 ? SEQ ID NO: 42
 ? LENGTH: 418
 ? TYPE: PRT
 ? ORGANISM: Homo sapiens
 US-09-832-659-42

Query Match 97.5% Score 850; DB 9; Length 418;
 Best Local Similarity 98.2% Prod. No. 1,40-77;
 Matches 163; Conservative 0; Mismatches 4; Indels 0; Gaps 0;
 US-09-832-659-42

QY 1 MSYNLAFGLQSSNPOGOKLIMQINRLECYLKMSPHDPPEKLOQOPKREDAALTY 60
 DB 25 MSYNLAFGLQSSNPOGOKLIMQINRLECYLKMSPHDPPEKLOQOPKREDAALTY 84
 QY 61 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 120
 DB 85 EMLGNFAIFRQSSSTGNNFTVENNLANYVHQINHLKTVLPEKLEKEDFTGALMSSL 144
 QY 121 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 166
 DB 145 HLEKYYGRLHLYLAKKESYSHAWLTVSVLLKRNHRYRINDLGYLGN 190

RESULT 12
 US-09-832-659-44
 ? Sequence 44, Application US/09842659
 ? Patent No. US2002015547A1
 ? GENERAL INFORMATION:
 ? APPLICANT: BIOGEN, INC.
 ? TITLE OF INVENTION: Interaction Like Fusion Proteins and Uses
 ? FILE REFERENCE: A064PCTSD
 ? CURRENT APPLICATION NUMBER: US/99/832,659
 ? CURRENT FILING DATE: 2001-04-11
 ? PRIOR APPLICATION NUMBER: 60/120,237
 ? PRIOR FILING DATE: 1999-02-16
 ? PRIOR APPLICATION NUMBER: 60/104,491
 ? PRIOR FILING DATE: 1998-10-16
 ? NUMBER OF SEQ ID NOS: 44
 ? SOFTWARE: Patent In Vet., 2.0
 ? SEQ ID NO: 44
 ? LENGTH: 424
 ? TYPE: PRT
 ? ORGANISM: Homo sapiens
 US-09-832-659-44

Tue May 6 12:42:34 2003

us-09-832-658a-25.rapb

Page 6

File Name: 111-00008

Match: 166; Conservative: 0; Mismatches: 0; Indels: 0; Gaps: 0;

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QY 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
   1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
DB 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
QY 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
   61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
DB 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
QY 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
   121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
DB 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166

```

RESULT 2

```

Best 09-09-1449-7
Sequence 5; Application US/09014497
GENERAL INFORMATION:
APPLICANT: 008 111, George N.
APPLICANT: Holder: biotechnology, Inc.
TITLE OF INVENTION: Activators of Growth Hormone and Related Proteins
FILE REFERENCE: 060011
CURRENT APPLICATION NUMBER: PCT/US99/014497
CURRENT FILING DATE: 1998 07 14
PUBLISHED FILING DATE: 60/052,516
PUBLISHED FILING DATE: 1997 07 14
NUMBER OF SEQ ID NOS: 41
SOFTWARE: Patented Ver. 2.0
SEQ ID NO 5
LENGTH: 166
TYPE: PRT
ORGANISM: Homo sapiens
Best 09-09-1449-7

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Query Match: 98.8%; Score 859; DB 1; Length 166;

Best Local Similarity: 98.8%; Pred. No. 4, 60-80;

Matches: 164; Conservative: 0; Mismatches: 2; Indels: 0; Gaps: 0;

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QY 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
   1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
DB 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
QY 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
   61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
DB 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
QY 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
   121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
DB 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166

```

RESULT 3

```

Best 09-09-157-008-7
Sequence 7; Application US/09157008
GENERAL INFORMATION:
APPLICANT: Bartell C. Conklin
APPLICANT: Francis J. Grant
APPLICANT: Mark W. Rixon
APPLICANT: Wayne Kinsvoogl
TITLE OF INVENTION: Interleukin epsilon
FILE REFERENCE: 98-46
CURRENT APPLICATION NUMBER: US/09/157,008
CURRENT FILING DATE: 1998 09-18
NUMBER OF SEQ ID NOS: 17
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 7
LENGTH: 166
TYPE: PRT
ORGANISM: Homo sapiens
Best 09-09-157-008-7

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Query Match: 98.5%; Score 859; DB 15; Length 166;

Best Local Similarity: 98.8%; Pred. No. 4, 60-80;

Matches: 164; Conservative: 0; Mismatches: 2; Indels: 0; Gaps: 0;

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QY 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
   1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
DB 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
QY 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
   61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
DB 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
QY 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
   121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
DB 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166

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RESULT 4

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Best 09-09-245-293-7
Sequence 7; Application US/09245293
GENERAL INFORMATION:
APPLICANT: Conklin, Bartell
APPLICANT: Grant, Francis J.
APPLICANT: Rixon, Mark W.
APPLICANT: Kinsvoogl, Wayne
TITLE OF INVENTION: INTERLEUKIN EPSILON
FILE REFERENCE: 98-46X2
CURRENT APPLICATION NUMBER: US/99/245,293
CURRENT FILING DATE: 1999 02-05
NUMBER OF SEQ ID NOS: 25
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 7
LENGTH: 166
TYPE: PRT
ORGANISM: Homo sapiens
Best 09-09-245-293-7

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Query Match: 98.5%; Score 859; DB 16; Length 166;

Best Local Similarity: 98.8%; Pred. No. 4, 60-80;

Matches: 164; Conservative: 0; Mismatches: 2; Indels: 0; Gaps: 0;

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QY 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
   1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
DB 1 MSYNLIGPIORSSNQCKILMOLNGLFYCKIKDMMNPDIPEIKIQOQFOKIDAAITTY 60
QY 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
   61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
DB 61 EMLONIFALFRODSSSTGNETIVENILANYHJINILKIVLEKKEDEFTGALMSSL 120
QY 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
   121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166
DB 121 HLKRYGRLIHLAKKESYSHCAWTVVVELLNRYKINRLTGYLRN 166

```

RESULT 5

```

Best 09-09-350-232-7
Sequence 7; Application US/09350232
GENERAL INFORMATION:
APPLICANT: Conklin, Bartell C.
APPLICANT: Grant, Francis J.
APPLICANT: Rixon, Mark W.
APPLICANT: Kinsvoogl, Wayne
TITLE OF INVENTION: Interleukin epsilon
FILE REFERENCE: 98-46
CURRENT APPLICATION NUMBER: US/99/350,232
CURRENT FILING DATE: 1999 07-08
NUMBER OF SEQ ID NOS: 25
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 7
LENGTH: 166
TYPE: PRT
ORGANISM: Homo sapiens
Best 09-09-350-232-7

```

Query Match 98.58; Score 859; DB 17; Length 166;
 Best Local Similarity 98.88; Pred. No. 4, 6a-80;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166

RESULT 6

US-09-403-542b-1

Sequence 1: Application US/09403542b
 GENERAL INFORMATION:
 APPLICANT: Schneider-Fresenius, Christian
 APPLICANT: Otto, Bernd
 APPLICANT: Maschütz, Gero
 TITLE OF INVENTION: Human haemoglobin with improved
 TITLE OF INVENTION: Solubility
 FILE REFERENCE: 127-66050
 CURRENT FILING DATE: 2000-02-22
 PRIORITY FILING DATE: 1999-04-23
 ERROR APPLICATION NUMBER: DE 19717864.2
 ERROR FILING DATE: 1999-04-23
 NUMBER OF SEQ ID NOS: 2
 SOFTWARE: Patent In Ver. 2.1
 SEQ ID NO 1
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-403-542b-1

Query Match 98.58; Score 859; DB 18; Length 166;
 Best Local Similarity 98.88; Pred. No. 4, 6a-80;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166

RESULT 7

US-09-462-941-5

Sequence 5: Application US/09462941
 GENERAL INFORMATION:
 APPLICANT: Cox III, George N
 APPLICANT: Bolder Biotechnology, Inc.
 TITLE OF INVENTION: Derivatives of Growth Hormone and Related Proteins
 FILE REFERENCE: 4152-1-PUS
 CURRENT FILING DATE: 2000-07-14
 PRIORITY FILING DATE: 1997-07-14
 NUMBER OF SEQ ID NOS: 41
 SOFTWARE: Patent In Ver. 2.0

SEQ ID NO 5
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-462-941-5

Query Match 98.58; Score 859; DB 19; Length 166;
 Best Local Similarity 98.88; Pred. No. 4, 6a-80;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166

RESULT 8

US-09-569-722-1

Sequence 1: Application US/09569722
 GENERAL INFORMATION:
 APPLICANT: Becton, Jora
 TITLE OF INVENTION: Novel, Novelty Active And Inactive With Children's Beta
 TITLE OF INVENTION: ACTIVITY
 FILE REFERENCE: 622-221-49-399
 CURRENT FILING DATE: 2000-05-11
 PRIORITY FILING DATE: 1999-05-12
 NUMBER OF SEQ ID NOS: 45
 SOFTWARE: Patent In Ver. 2.1
 SEQ ID NO 1
 LENGTH: 166
 TYPE: PRT
 ORGANISM: Homo sapiens
 US-09-569-722-1

Query Match 98.58; Score 859; DB 19; Length 166;
 Best Local Similarity 98.88; Pred. No. 4, 6a-80;
 Matches 164; Conservative 0; Mismatches 2; Indels 0; Gaps 0;

1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 1 MSYNLIGFQSSNPNQKILWQINQPEYCKIPNNPPIPEKIKQJQCEPDALTY 60
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 61 EMLQNFALFPGDSSSTQNNETIVENILANYHQINHLKTVLEKELEKEDFTGALMSSL 120
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166
 121 HKRYVCPILHLYLAKESHCAMTIVAVETILNFRINRLTGLRN 166

RESULT 9

US-09-569-722-2

Sequence 2: Application US/09569722
 GENERAL INFORMATION:
 APPLICANT: Becton, Jora
 TITLE OF INVENTION: Novel, Novelty Active And Inactive With Children's Beta
 TITLE OF INVENTION: ACTIVITY
 FILE REFERENCE: 622-221-49-399
 CURRENT FILING DATE: 2000-05-11
 PRIORITY FILING DATE: 1999-05-12
 NUMBER OF SEQ ID NOS: 45



Pending Nucleic Acid and/or Pending Amino Acid database searches now generate two sets of results. These databases were split into two parts to reduce the time needed to update the databases daily. The split freed up more machine time for processing searches.

Searches run against the Nucleic Acid Pending database produce two sets of results, with the extensions, **.rnpm** and **.rnpn**

Searches run against the Amino Acid Pending database produce two sets of results, with the extensions, **.rapm** and **.rapn**

The Pending database search results should not be left in the case because they contain data that is confidential.

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